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No. 11

The
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Orthodontia
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Oral Surgery

*A Monthly Journal Devoted to the Advancement of the Sciences
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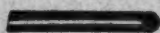
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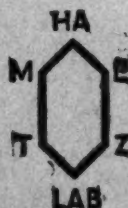
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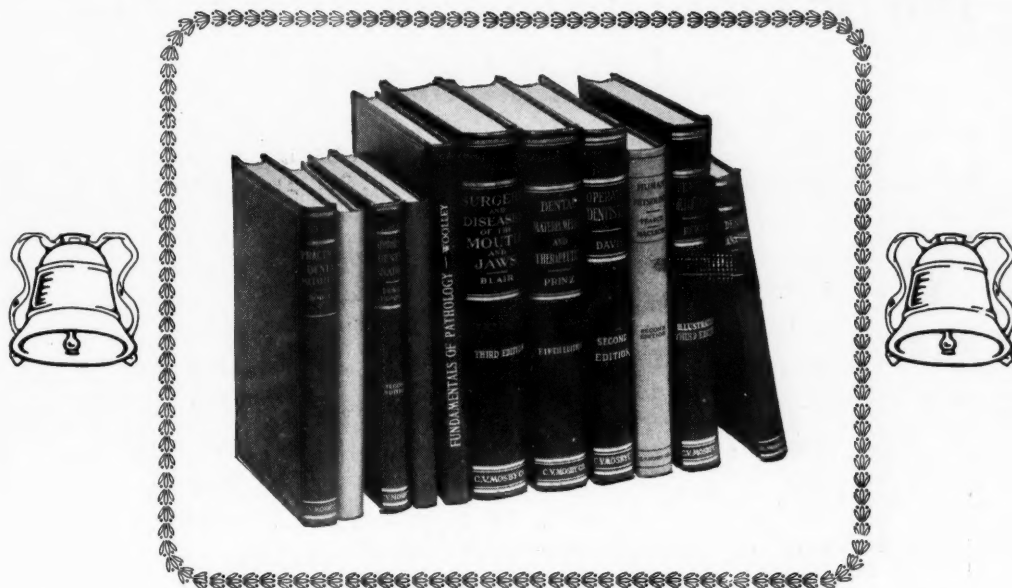


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The International Journal of Orthodontia and Oral Surgery

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VOL. VII

ST. LOUIS, NOVEMBER, 1921

No. 11

ORIGINAL ARTICLES

THE TEMPOROMANDIBULAR ARTICULATION IN THE DISTOCCLUSION CASE*

BY A. LEROY JOHNSON, SC.D., D.D.S., BOSTON, MASS.

THERE is nothing novel to this Society in a discussion of the problem of the temporomandibular articulation in the distocclusion case. It is a subject that has been treated many times. I am here in order to comply with the request of the committee and not because I have a very definite contribution to make. In the literature very positive claims have been made as to the nature of changes resulting from treatment, although the evidence presented is not at all convincing. Some say they know that in certain cases the mandible has come forward, and also that in a mesiocclusion case it has certainly jumped back. However, until such statements are supported by data of a more reliable nature than that of personal observation of an isolated case or two, they should not take precedent over logic built upon the study of the evolution, racial and individual, and of the structural constitution of the parts involved. Inasmuch as the burden of the proof rests upon the one who makes the claim, and as substantial evidence has not as yet been produced, the fact is that knowledge relative to changes in the temporomandibular is very limited. I shall only present a brief criticism of the evidence upon which the belief is based that changes in the temporomandibular articulation constitute such a vital problem in the distocclusion case.

Change in the temporomandibular articulation resulting from treatment can be interpreted in either one of two ways; either as an alteration in the relations of the head of the condyle to the glenoid fossa, or as a harmonious modification of the joint as a whole. The latter, for example, would be comparable to the effect produced by compressing and stretching a rubber image; while the former refers to a physical translation of parts.

*Read before the American Society of Orthodontists, Atlantic City, N. J., April 27-30, 1921.

Little evidence can be found to substantiate the assertion that the condyle is ever actually brought forward in the glenoid cavity and made to stay forward as a result of treatment; that there is in reality a permanent physical translation of parts as a result of treatment. Paleontology and Embryology contribute nothing to support this view. But in the anatomic organization of the joint it is perhaps possible to find partial explanation of the change that seems apparent in clinical observations, and which has led many to believe that the condyle is moved forward on the eminentia as a result of treatment.

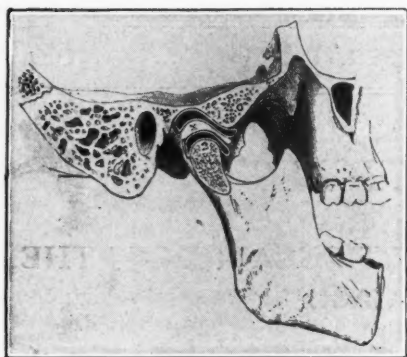


Fig. 1.—Sagittal section of the temporomandibular joint of the right side. (Allen Thomas.) (*Quain's Anatomy.*)

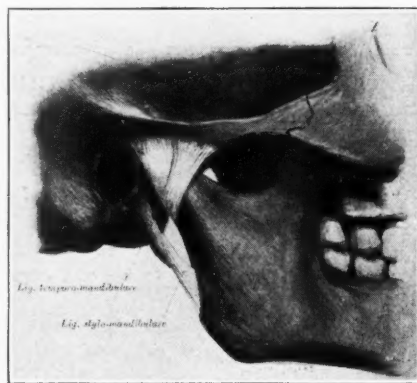


Fig. 2.—The mandibular articulation from the side. (Drawn by A. K. Maxwell.) (*Quain's Anatomy.*)

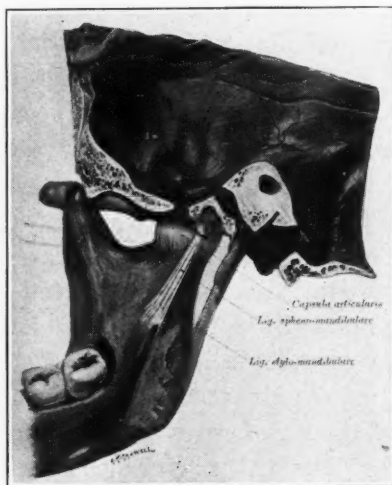


Fig. 3.—The mandibular articulation and accessory ligaments from the medial aspect. (Drawn by A. K. Maxwell.) (*Quain's Anatomy.*)

I shall not attempt to review the anatomy of the temporomandibular articulation, as this has been so well done by Cryer, Dewey, Prentiss and others. Our interest lies in that part of the field of anatomy which throws light upon the phenomena manifest in the occlusal relations of the teeth which seem to indicate conditions in the joint.

Piersol says of joints in general: "The opposed ends of the bones are coated with hyaline articular cartilage which gives smoothness to the articular surfaces. Although following in the main the bony contours, the cartilage does not do so accurately; details are found in the cartilage that are obscure

in the bones. Although the shapes of the articular ends determine the character of motion, it is important to recognize that the opposed surfaces are not so accurately in apposition that irregular movements cannot and do not occur. Failure to recognize this fact has given rise to much difficulty in accounting for motions that undoubtedly take place, but which, according to the mathematical conception of the joint, are impossible. Furthermore, the range of individual variation is great, just as a man may have a long or a short head, so the articular ends of the bones may depart considerably from typical proportions."

The temporomandibular articulation is a compound joint, the elements



A.



B.

Figs. 4A and 4B.—Head of a fetus of 42.5 mm., seen *en face* and in profile. X 2.5. (After Retzius.) (Keibel and Mall.)

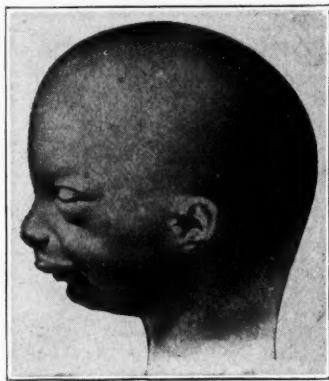


Fig. 5.—Head of a fetus of 117 mm., in profile, Natural size. (After Retzius.) (Keibel and Mall.)

of which are the socket, the condyle, and the meniscus, an interarticular disk of fibrocartilage, dividing the cavity into an upper and lower part, both being enclosed in a capsular ligament. Movements occur on both sides of the meniscus which gives to this joint its great freedom of movement. Many attempts have been made to analyze the movements of the parts in mastication. But it should be clear to all that the knowledge of such movements derived from the study of the structural formation of the parts of the dead subject will naturally be very indefinite. The character of the joint, and the great range of variation in the conformation of its elements, precludes precise delineation of its movements.

J. Leon Williams has recently published an interesting investigation of the relation of the articulating plate of the glenoid fossa in the resting position of the condyle. He "selected skulls of a number of races in which dentures were sufficiently good to insure normal resting occlusion," and made modelling compound impressions of the glenoid cavity by forcing the con-

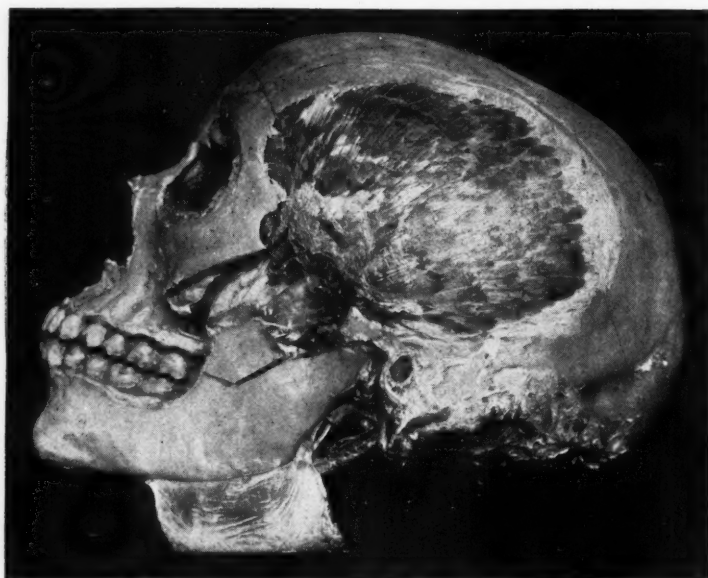


Fig. 6.

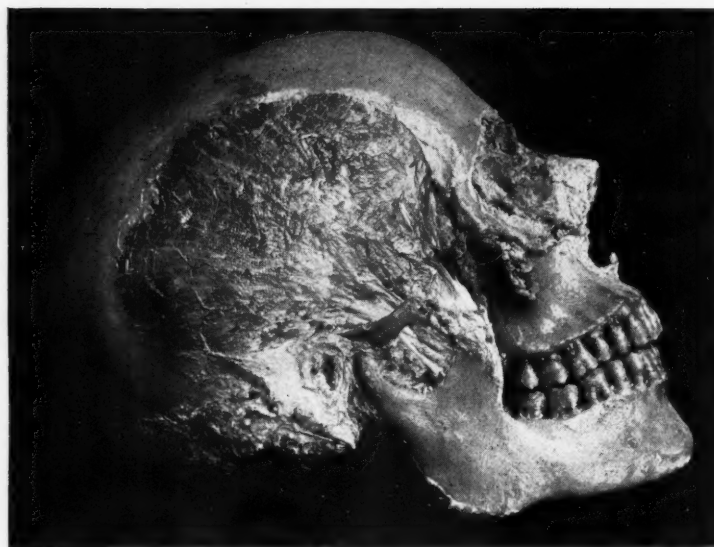


Fig. 7.

dyle into the compound in bringing the teeth into normal occlusion. He then made cross-sections which showed a wide degree of variation in the forms of the articular surfaces and the relations they bear to each other.

The wide variation in the structural conformation of the joint, together with the natural freedom of movement peculiar to it, makes liable the unex-

pected. And this fact must be taken into consideration before it can reasonably be claimed that because a particular movement of the jaw cannot be explained by a study of the mechanics of typical conditions that the condyle has been physically changed in its relation to the glenoid fossa. A great latitude and freedom of movement of the mandible is possible within normal physiologic limits.

The anatomists tell us that the mandible is held in position by the ligaments, muscles, atmospheric pressure, and cohesion. The ligaments are lax. They define certain limits of movement, and are the principle of protection against dislocation and displacement of the joint. The muscles are the most efficient means of holding the mandible in position. Atmospheric pressure, although an influence, is not very efficacious; it keeps the soft parts applied to the bones. Cohesion probably has an appreciable effect through the action of the viscid synovial fluid. Thus of the factors commonly designated as holding the mandible in place the muscles are the most important, and so con-



Fig. 8.

stitute the dominant force in determining its position. The ligaments mark the limit of normal muscular action.

The capsular ligament arises from the periosteum near the border of the articular cartilage. This ligament, like the others which enter into this articulation, is constituted of white nonelastic fibers.

"Sudden strain upon the ligament will either have no effect or will rupture some of its fibers and perhaps injure the adjacent joint surfaces." (Starling.)

Nor are the ligaments as susceptible to environmental influences as is osseous tissue; they are not plastic as bone is plastic; they are of a more stable nature. With regard to cartilage it is well known that the "growth and multiplication of cells is an extremely slow process—slower than in any other tissue of the body." (Keith.) Muscle tissue is a physiologically more active structure than any of the connective tissue derivatives. It, in a measure, di-

rects the development of bone. Moreover, the tonic contraction of muscle tissue holds the mandible in position. The muscles "react to any sudden increase in their tension by an equally sudden contraction. This saves the joint from dislocation before the central nervous system has even become aware of the strain." (Starling.) It is not necessary to present in detail the evi-

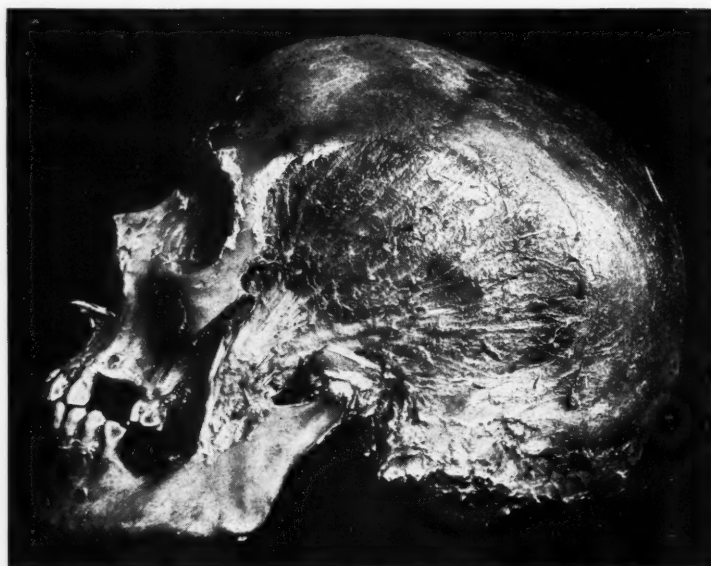


Fig. 9.



Fig. 10.

dence in the support of the belief that the relation of the condyle to the glenoid cavity, in the sense of there being a physical translation of parts, is not changed in the treatment of the distocclusion case, inasmuch as such evidence is the common knowledge of the anatomy and physiology of the structures which make up the articulation.

Whether there is ever a harmonious modification of the joint as a whole, as a result of the redistribution of forces resulting from treatment, is another matter. From the nature of connective tissue structures it seems as though this might be possible. Yet, even so, the literature contains little direct evidence to substantiate this idea. In cartilage, reproduction and growth in the cells bear a definite relation to the normal stresses and strains of force. "Certain strains are necessary to call forth the growth energy of cartilage cells." (Keith.)

We note at times that following the development of the upper dental arch by means of appliances the lower teeth seem to come forward from a distal occlusal relation to normal unassisted. Before attributing this apparent readjustment to a change in the temporomandibular articulation we should recognize the fact that such change in the relation of the mandible to the maxilla is in harmony with normal growth processes. In these cases where



Fig. 11.

the change becomes permanent it is not necessary to assume the forward movement of the condyle in the glenoid fossa.

That the forward growth of the mandible is a natural process is evident in a study of the embryology of parts.

Keibel and Mall: "Fetus 42, 5 mm. in length, and estimated at nine weeks old. In profile view the great development of the forehead region is striking, and below this the root of the nose is deeply depressed. The nose is still low, but the jaws and chin are well marked. The nose is very broad in proportion to its height, and the external nares are closed by the epidermal plugs which are continuous with an epidermal thickening of the upper lip."

Keibel and Mall: "Note especially the projecting upper lip and the receding chin, the double upper lip and the shape of the nose. The *prima* has almost the position it holds in the adult. In the first half of the third month the two lips project equally, but later the border of the upper lip

and the lip itself grow more rapidly, so that in the fourth and fifth months it projects markedly beyond the lower lip; by a stronger growth of the lower jaw and lip this difference is gradually overcome in the sixth to the ninth months, but by a kind of inhibition process the early fetal arrangement may be retained in the adult to a marked degree."

Thus do we find in the study of natural processes conditions which throw



Fig. 12.



Fig. 13.

light upon the derivation of certain abnormalities of form, and also, an explanation of changes which otherwise seem most obscure.

Although measurements made from more stable points of the skull, as the external auditory meatus, show a relative change in the position of the chin as a result of treatment it is not rational to assume a change in the temporomandibular articulation, because the osseous tissue in other parts of the mandible, especially the neck of the condyle below the capsular ligaments

and the angle of the jaw, are from their nature more susceptible of modification than the joint. In fact the weight of the evidence indicates that the joint is less liable to change than is the mandible itself.

In the study of the phylogeny and ontogeny of the dental apparatus we find that the teeth develop first and the jaws later to support them; that the temporomandibular articulation is a comparatively recent acquisition in the



Fig. 14.



Fig. 15.

vertebrate anatomy, necessary for stability of attachment; and that there is evident in different species a direct correlation between the formation of the temporomandibular joint and the character of the teeth and occlusion. Now such knowledge is a basis for the interpretation of variations and changes expressed in species but in the consideration of the individual organism we must remember that although the tooth is phylogenetically the dominant structure of the dental apparatus including the temporomandibular articula-

tion, the jaws and joint are now racial characters of the individual organism; they are essential units in the organization of the whole. People without teeth, and who have never had them, have jaws and the temporomandibular joint. Thus even though the correlation between the character of the joint and the teeth is so striking in the comparison of the different species, it does not constitute a principle upon which to assume that the change in the occlusal rela-



Fig. 16.



Fig. 17.

tions of the teeth of an individual in the treatment of the distoclusion case will cause as absolute a corresponding modification of the joint as is evident in the study of species. The question cannot be so easily disposed of. The form of a bone is determined partly by heredity and partly by the mechanical and chemical influences to which it is subjected during growth. Nevertheless, the evidence derived from Paleontology and Embryology would seem to indicate the possibility of a certain degree of harmonious modification of the

joint as a whole as a result of structural changes occurring in the denture. Whether or not this is true can only be determined by more extensive studies, clinical observation, and experiments than have as yet been presented to the profession.

Figs. 6 to 11 illustrate specimens presenting a variety of occlusal conditions. The temporal; pterygoids; lingual, and sublingual muscles in these specimens are undisturbed, hence showing the parts in the cadaver. Note the general form of the mandible, the joint and dental conditions.

Figs. 12 to 17 are pictures of the same specimens with the temporal muscles removed. The external pterygoids are showing.

Fig. 18 is a dried skull of a distocclusion case. Note the relation of the head of the condyle to the glenoid fossa and external auditory meatus.

These specimens are too few in number to be accepted as conclusive evidence of the relation of dental conditions to the joint. However, the extreme characteristics manifest make them interesting material for study. Note the



Fig. 18.

variation in the general form of the mandible, especially in the region of the neck of the condyle, in contrast to which is a certain stability in the forms and relations of the parts which make up the joint. Such evidence as this in the light of the anatomy and physiology of the parts puts the burden of the proof squarely up to those who claim that the head of the condyle is brought forward to a new position in the treatment of the distocclusion case.

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DISCUSSION

Dr. Milo Hellman, New York City, was asked to open the discussion. He said: I hasten to open the discussion because I want to pay my compliments to Dr. Johnson for the illuminating results in the work he has done. I also want to state that the results not only coincide very largely with those of my own work and investigations along these lines, but they also verify and corroborate my findings.

The lack of change in the temporomandibular articulation I can substantiate from an examination of a number of skulls exhibiting Class II, Division I, manifestations. The series of skulls, come from the same locality and have the same racial and physical characters. They show the same variability in form and position of the condyles and the temporomandibular articulation shows no difference from those in normal occlusion and yet they are in distocclusion, i. e., Class II, Division I.

I wish to thank Dr. Johnson and express my gratification at having seen the illustrations of the specimens.

Dr. Irving Spenadel, New York City.—I would like to relate briefly some observations that I made with Dr. Sullivan, Anthropologist of the American Museum. These observations were interesting. A number of skulls were examined which showed mutilations on one side of the jaw varying from two to eight and ten teeth to none on the other side. However, the point of greatest interest to us was the fact that there was no change in the glenoid fossa itself when compared to the fossæ of skulls which had no missing teeth and appeared normal.

On the other hand the change that was most striking in the mutilated skull was the heavier and thicker neck, a broader and flatter condyle where mastication was greatest as compared to a thinner neck and narrower condyle where mastication was poorest. There was no change in the glenoid fossa itself of any of the skulls examined.

Dr. V. E. Barnes, Cleveland, Ohio.—I would like to ask Dr. Johnson to answer, or to investigate later if he will, whether he has ever noted in studying articulations any cracking sound in the temporomandibular articulation?

I have often noted a characteristic cracking noise associated with it. This cracking seems to develop after nine years of age and increases in degree to maturity. This cracking sound has been decidedly lessened by expansion of the maxillary mandibular arches. Some relief has been afforded by extracting impacted lower third molars. Just what could have happened in such cases to cause this cracking sound, I cannot suggest. I do not know, positively what the cracking condition is, but I know it exists and has been relieved or apparently cured by expansion laterally *without* posterior movement of the teeth or without extraction of any teeth. In other cases no relief could be noted except after extraction of impacted teeth. In six cases I have relieved all cracking by such extraction. I submit this start for further observation.

Dr. Frank A. Delabarre, Boston, Mass.—There has been a picture shown here today of a skull from Dr. Cryer's collection which I think I recognized, where there was a unilateral dislocation of the mandible. I have previously examined this skull with the view of studying the symmetry of the ramus and condyles, and they showed a very great asymmetry in size, shape, and form which, personally, I interpreted to have been a change that took place subsequent to the dislocation. It would seem to have some bearing on the question of change in the articulation. If such an extreme modification was produced by a changed environment, why can we not expect lesser changes to occur in this region when we change the environment by jumping the bite.

Dr. A. Leroy Johnson, Boston (closing).—In reply to Dr. Barnes' question, in the dead subject the joints cannot be moved to any extent so long as the muscles are attached. Dissection is not a satisfactory way to study this problem for the reason that the bones cannot be moved with the soft parts attached, and when the soft parts are removed the relation of the skeletal units is lost.

THE POSTOPERATIVE TREATMENT OF CLASS II*

BY C. A. HAWLEY, D.D.S., WASHINGTON, D. C.

IN CONSIDERING the postoperative treatment of this class, the general principles of retention as affecting all classes of malocclusion will not be reviewed except as they apply in some especial way to this particular class.

Retention is the exercise of either an active or a passive force as a means of combating the retroactive forces that tend to induce teeth that have once been moved to return to their former positions. Postoperative treatment includes other means of maintaining a corrected occlusion.

We might enumerate the necessary retention in this class as follows:

- I. Maintenance in proper position of teeth that have been rotated.
- II. Maintenance of the proper inclination of the incisors.
- III. Maintenance of the overbite.
- IV. Maintenance of the exact corrected sizes and forms of the arches.
- V. Maintenance of the normal mesiodistal relation as corrected from distal occlusion.

Only the last is peculiar to this class alone, the others occurring also in other classes of malocclusion.

As to the first, the retention of teeth that have been rotated, we have the same problem in this class as in all others and the method requires no especial consideration. It is usually accomplished by banding the teeth, using spurs soldered to the bands and resting on the adjoining teeth in such a way as to counteract the retroactive force of rotation.

Second, in the majority, if not all, of Class II cases, there is an abnormal inclination of the incisor teeth. In Division I they have an outward and in Division II an inward inclination. The mechanical retention in Division I has usually been accomplished by the high Lourie wire with finger springs, accompanied by a lingual wire resting at the gingival, or by a lingual wire lying at the linguogingival border and a labial wire resting near the labial incisal edges, both soldered to canine bands. This mechanical retention should be succeeded by exercises to strengthen the orbicularis oris muscle and the abandonment of all lip-biting, thumb-sucking or similar habits.

In III, the maintenance of the overbite, we must assume at this place that it has been corrected during treatment, although the bite-plane, the universal appliance for its retention, is also used for its treatment during the first stages

*Read before the American Society of Orthodontists at Atlantic City, N. J., April 27, 28, 29, 30, 1921.

of retention. We can only consider retention proper, however, when the condition is reduced to normal. The usual method of retaining the overbite is some kind of bite-plane, either a solid plane attached to bands on the maxillary incisor teeth or in the form of a skeleton wire, loops also soldered to bands or to the lingual wire. The object of the wire loops is to prevent the proliferation of the gum tissue, which often occurs under a solid bite-plane. The author has also used single wire loops attached to the individual teeth, thus permitting considerable individual movement of the teeth, as rotation, when the bite-plane is desired during the treatment.

The importance of IV, the maintenance of the exact corrected sizes and forms of the arches, can hardly be overestimated, for upon its success often depends the success of the retention of the mesiodistal relation.

In a neutroclusion with normal arch forms, the occlusal lines if superimposed upon each other will be a uniform distance apart, approximately twelve-one-hundredths of an inch, throughout the whole arch forms; the arch form of the mandibular, of course, lying on the inside of the maxillary. This uniform relation of about twelve-hundredths of an inch between the lines of occlusion of the maxillary and mandibular obtains in all neutroclusion cases and may be called the *harmony of the arches*, and is necessary for a perfect interdigitation of the cusps. Now if the mandibular arch remains normal or the same size and the maxillary becomes narrowed, the mandibular, in order to obtain this harmony in the molar and premolar region, must move backwards to find a comfortable occlusion. This action carries the lines apart in the incisal region, exactly what happens in posterior-occlusion cases. Of course, the mandibular arch in these cases is not always normal and must be widened, but always the maxillary must be widened more than the mandibular.

With this in mind, it can be seen how important it is that the maxillary arch be successfully retained, for if it once commences to narrow, the mandible will be likely or sure to seek again its distal position. Unfortunately, we generally have associated with this class adenoids and nasal and throat disturbances, which may persist long after orthodontic treatment has been concluded and exert a retroactive effect upon the arch. So while the widening of the maxillary arch in this class confers great and lasting benefits, it must also be understood that it renders the retention more difficult. In Class I, or neutroclusion, the results of the narrowing of the maxillary arch after retention is removed, are not the same. The mesiodistal relation not having been changed, the narrowing maxillary arch usually carries the mandibular with it, with no change in the mesiodistal relation. Also there are usually no lingering nasal disturbances which stimulate this tendency.

The *cruz* of the situation in this class is, of course, the retention of the mesiodistal relation. In discussing the retention, it is presumed that in the treatment, the mesiodistal relation has been thoroughly established, either by intermaxillary elastics, or muscle exercises, or in many cases, when the maxillary arches are widened so that the arches are in harmony, the normal mesiodistal relation is automatically resumed. If this relation is well established dur-

ing treatment, the overbite normal, and there are no interfering cusp relationships, very little mesiodistal retention in itself will be required in the majority of cases, and the most important retention required will be that to maintain the harmony of the arches. For this purpose the soldered or removable lingual wire may be used, accompanied with a bite-shelf if the overbite has been abnormal. In cases that show a persistent tendency to return to the former distal relation, arrangement should be made for the use of light intermaxillary elastics for a long time, and the muscle exercises should be faithfully adhered to.

On account of the long retention, especially of the maxillary teeth, often necessary in this class, I have been more successful with the removable retainer, which has previously been described before this Society. The great advantage is that, while successfully retaining all the malocclusions of this class, viz: rotated teeth, the inclination of the incisors, the overbite and the width of the arches, it is removable and patients are content to wear it the necessary length of time. Its weak point for this class is that it can have no provision for intermaxillary rubbers. These, however, in most cases can be superseded by the bite-plane and muscle exercises. In cases of persistent tendency to recede, fixed retention can be worn for six months or a year, then succeeded by the removable retainer.

I have spoken in other papers of the advantages of this retainer from a hygienic standpoint and of the great advantage of having the teeth free from bands during retention. In this class its advantage lies in the fact that retention can be kept up for so much longer time without danger to the teeth and without disagreeable disfiguration of the patient.

Great emphasis must be placed upon the removal of slight interferences in the occlusion, upon the abandonment of deleterious habits, upon the use of Dr. Rogers' muscle exercises and the conscious effort to bite forward in the proper occlusion until the inclined planes and cusps of the teeth are firmly and accurately settled into place, and the muscles have strengthened and developed to the natural tone and function.

There are, no doubt, cases that have reached or passed maturity where the cusps of the teeth have been worn smooth, in which it would be unwise to attempt to change or retain the mesiodistal relation. In this paper I have been referring to cases younger than about eighteen and where the cusps and fissures of the teeth have not been seriously mutilated.

As to the matter of the influence of inheritance on the retention of this class of cases, I have never yet in my own practice been able to discover this influence to such an extent as to interfere with their final successful retention. Nor do I know of any orthodontist, except Dr. Case, who has noted such influence to any great extent. I do not question, however, the influence of heredity as a causative factor in this class and all other classes of malocclusion. Normal occlusion, however, has been inherited by the human race for tens-of-thousands of years, and the influence toward normal occlusion seems potent enough to overcome and upset the persistency to return, when these abnormal conditions have been removed by proper treatment.

DISCUSSION

Dr. Samuel Herder, New York, N. Y.—I would like to ask a question with regard to muscular exercises. I have been quite interested in Dr. Rogers' work along the line of exercising the muscles of the face, and I feel that most of the men here would be glad to know what Dr. Hawley does and his exact process of exercising the muscles of the face and jaws to develop them in Class II cases or other cases. I would like Dr. Rogers to say something himself on this subject, but I feel Dr. Hawley could help us out, as he mentioned the subject in his talk.

Dr. Hawley.—In that work I am simply a pupil of Dr. Rogers, and as Dr. Rogers is here, I would much rather he would answer the question himself.

Dr. Waldron.—Dr. Hawley in the beginning of his paper gives us a definition of retention, and admits of a passive and an active force, and in addition states that postoperative treatment includes other means of maintaining a corrected malocclusion.

He further enumerates five requisites in the retention of this class of irregularities which are as follows:

- I. Maintenance in proper position of teeth that have been rotated.
- II. Maintenance of the proper inclination of the incisors.
- III. Maintenance of the overbite.
- IV. Maintenance of the exact corrected sizes and forms of the arches.
- V. Maintenance of the normal mesiodistal relation as corrected from distal occlusion.

These various steps in his so-called postoperative treatment, come under this active or passive retentive force or both, and are therefore covered by his definition of retention.

Now these so-called retaining appliances do not retain, and the occlusion is generally improved during the period of time these appliances are worn, due to the various forces of occlusion functioning. The appliance meanwhile prevents the teeth from returning toward their original positions.

In view of these facts that term "Post Treatment Maintenance of Mal-Occlusion," which this Society adopted last year to replace the term "Retention," more fully covers this subject, and should be used until a better terminology is adopted.

Therefore, I sincerely hope every member of this Society will use the nomenclature adopted by the American Society of Orthodontists.

The author has well covered the ground in his explanation of these five essentials for the proper maintenance of normal occlusal relation after treatment of these distocclusion cases have been completed, and he favors the removable maintenance appliance which he introduced to this Society a few years ago as the one best suited.

He says it has two weak points, and these are its failure to maintain rotated premolars in the mandibular arch, and its lack of provision for intermaxillary elastics.

These are easily overcome; instead of banding the mandibular premolars and soldering a lug perpendicular on the lingual surface of the band, this lug fitting into a slot in the vulcanite portion of the appliance, as recommended by the essayist, you can band these premolars and have a horizontal lug or spur soldered to the band on its buccal surface and extending mesially and distally to the adjacent teeth and resting against the latter.

This will maintain the rotated teeth in their new positions, and will not interfere with the removable maintenance appliance when inserting or removing the same.

Hooks for intermaxillary elastics can be soldered at convenient points on the maintenance appliance, and the latter can be stabilized by banding the first maxillary premolar and soldering a horizontal lug to the band on its buccal surface, which will prevent the clasp of the appliance from slipping off the banded tooth. This will not elongate the banded premolar unnecessarily, as the occlusal contact with the first and second mandibular premolars will prevent this.

It has been my experience in some older cases where the cusps of the molars and premolars are not so pronounced, and there is a tendency for the mandible to seek its former distal position, that it is unwise to use a lingual wire for the maintenance of the mandibular teeth, and a Hawley application on the maxillary teeth, because the bite-plane on

the maxillary teeth will maintain the mandibular incisors, but the premolars and molars seem to settle back leaving a space between the mandibular first premolar and the canine.

This however, can be overcome by using a Hawley appliance on both maxillary teeth and mandibular teeth, the mandibular labial wire preventing the mandibular incisors from moving forward, and vulcanite festooned about the lingual surfaces of the molars and premolars will prevent them from moving distally.

We all agree in the treatment of distocclusion cases that we usually accomplish the following:

- I. Equalize maxillary and mandibular arches.
- II. Bring the mandible forward.
- III. Change the angle of inclination of the incisor teeth, (Maxillary and mandibular).
- IV. Correct the supraocclusion of incisor teeth if necessary, (Maxillary and mandibular).
- V. Induce vertical development of premolar and molar area, (Maxillary and mandibular).

With these forms of postoperative maintenance appliance as devised and recommended by Dr. Hawley, we can maintain and sometimes correct several of the above steps which are necessary requisites in the treatment and maintenance of distocclusion cases.

Dr. C. A. Hawley, Washington, D. C. (closing).—There is practically nothing further I wish to say in regard to the muscle exercises. This subject is very clearly and completely covered in the admirable papers by Dr. Rogers.

In regard to what Dr. Waldron said about bands on the mandibular premolars, I have practically abandoned these slots myself. I find a spur on the buccal surface is better. However, that is a mere detail. While I think very highly of a lower removable retainer, yet it is more difficult than an upper. If you are using a lower retainer at the same time with a bite-plane, there can be no protrusion of the mandibular teeth, as they are held in place by the labial wire. Every year I use this retainer I am more and more impressed with its desirability in this class of cases on account of the possibility of the long retention necessary. It is surprising to me how quickly patients will grasp the theory of this retainer and understand the principal points of its use. Patients come to me and say, "I have experimented; I have left it out so long; it would not work. I am not going to leave it out so long again." Or, "I have left it out two weeks and it is all right." They grasp the idea of keeping them as an index of the positions of the teeth. I have been much gratified to see how quickly they grasp the principle. Also, I am impressed more and more with the potency of small interferences with the cusps, that is, in the necessity of removing all slight interferences. In that connection, one value I have found in removable retention is that the molars have a certain freedom of movement in settling to place. I have several cases where when I retained them I found I did not get the exact relations of the arches, and so I left the maxillary retainers off for about a week, and then trimmed the retainer slightly and put it back in. The cusps moved into perfect adjustment. Sometimes I make a new one after a week or two and let the teeth settle exactly and accurately in their proper place.

In illustration of the effect of slight interferences, I had two months ago a case thrown into distocclusion from the rising of a mandibular second molar from pressure of an impacted third molar. This molar was pushed upward in the socket. It was thrown against the distal surface of the maxillary first molar, and it caused the mandible to move back. I had the third molar removed, expecting that the second molar would settle down, but it did not do it, and as the boy was going away to school, I ground some of the enamel off the maxillary tooth and dismissed him for a week. When he returned, the bite was back into proper place. I found in one case an erupting third molar, where the second molar had been extracted, was coming forward with the inclined occlusal surface against the maxillary teeth, throwing the mandible back. When the third molar was straightened up the jaw came forward again. These interferences are very important in this class of cases.

REPAIRING LINGUAL ARCH WITHOUT REMOVING MOLAR ANCHOR BANDS*

BY HERBERT A. PULLEN, D.M.D., BUFFALO, N. Y.

IT is frequently necessary to make repairs upon the lingual arch or to occasionally construct a new one upon an investment material cast made from a compound impression of the dental arch, the usual procedure requiring the removal of the molar anchor bands and their replacement in a compound impression taken just previously to the removal of the bands. These bands later appear upon the cast with the half round tubes in proper position for locking of the lingual arch for repairs, or for the construction of an entirely new arch.

The most serious objection to this method is the length of time consumed in removing the anchor bands, placing them in the impression, and recementing them upon the teeth after the arch is repaired or reconstructed.

In order to overcome this objection and conserve the time spent in removal and replacing of the anchor bands, the writer has devised a method of repro-

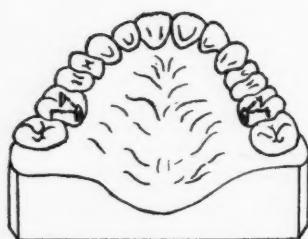


Fig. 1.

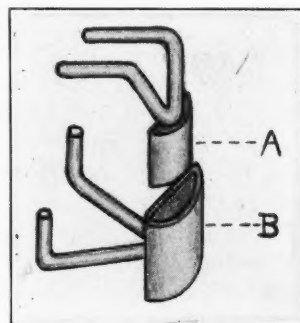


Fig. 2.

Fig. 2.—A. Half round rod with tongs to be inserted in impression. B. Half round tube with tongs to be inserted into cast.

ducing upon the investment cast the half round repair tubes only, firmly attached to the lingual sides of the molars in the exact location of the half round tubes in the mouth, as in Fig. 1, so that any repair or reconstruction work may be done thereon without removal of the molar anchor bands.

The method consists of the use of a pair of temporarily substituted rods and tubes, each with tongs attached with solder and bent internally as shown in A and B, Fig. 2. The tongs on the rod portion A should be made of a short V-shaped section of 19 gauge wire attached at the center of the V to one end of the rod as in A, and bent transversely at right angles inward so they lie just above the molar cusps when the rod is inserted in the lingual half round tube in the mouth.

*Clinic before The American Society of Orthodontists, Atlantic City, April 30, 1921.

The tangs on the half round tube should be made of a V-shaped section of 19 gauge wire, the V portion being attached at right angles to the center of the flat part of the tube as in *B*, Fig. 2, and the ends bent upwards at right angles so that they will obtain a firmer hold in the interior of the plaster tooth in which they will be imbedded when the cast is poured.

The next procedure consists in placing a properly tanged portion, *A* Fig. 2, of the half round rod into each half round tube in the mouth where they would appear as in Fig. 3, the tangs being closely curved over the occlusal surfaces of the molar anchor teeth.

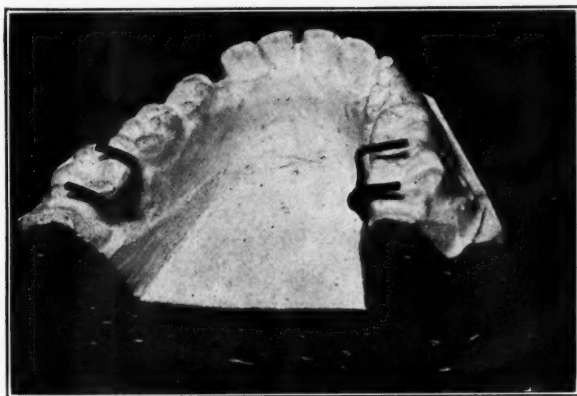


Fig. 3.



Fig. 4.

A compound impression is next taken of the dental arch, the tangs remaining in the compound, the half round rod only emerging and locating the exact position for the tubes, as in Fig. 4.

Half round tubes with tangs attached are then placed on the half round rods in the impression which is then filled with investment material.

Upon removing the compound shell from the cast, the half round rods with tangs attached are removed from the tubes, and the cast appears as in Fig. 1, with the half round tubes exactly in position for the repair or reconstructive work.

Several dozen pairs of the tanged rods and tubes may be made up of manganese bronze, so that it will not be necessary to use gold and platinum rods and tubes for this repair work.

This method will also prove valuable in making a duplicate appliance for clinical demonstration, eliminating all of the band construction on the anchor teeth and the extra impressions and casts usually necessary when making appliances for clinics.

REPORT OF CASE BEFORE THE AMERICAN SOCIETY OF ORTHODONTISTS, ATLANTIC CITY, N. J., APRIL 27-30, 1921

BY DR. GRAFTON MUNROE, SPRINGFIELD, ILL.

THIS is an unusual case where a permanent first molar is erupting against or at the enamel ridge or neck of the deciduous molar, acting as if impacted and causing distressing pain.

At the appeal of the mother of the little patient, I removed the deciduous molar thereby giving the permanent molar complete freedom. After a few

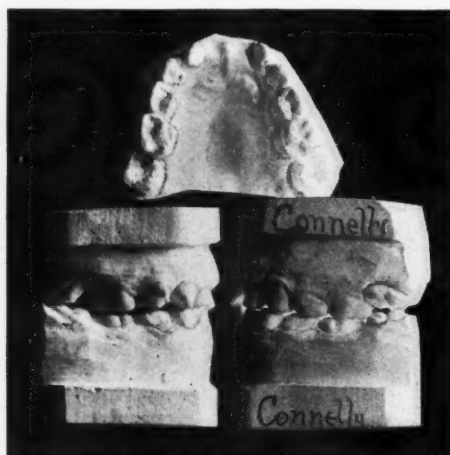


Fig. 1.

days, bands were made and adjusted to the deciduous first molar to which was attached spring wire resting against the mesial face of the permanent molars for the purpose of maintaining space for the second premolar, and also for the purpose of pushing the molar into better occlusion with its mandibular permanent antagonist.

DEPARTMENT OF ORAL SURGERY AND SURGICAL ORTHODONTIA

Under Editorial Supervision of

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TECHNICAL PHASES IN THE SUCCESSFUL CONTROL OF THE EPIDERMIC INLAY*

BY JOSEPH D. EBY, D.D.S., NEW YORK, N. Y.

THE purpose in presenting this subject today is not to exploit an interesting bit of surgery, but rather more to stress certain technical details which, after seasonable experiences, have become firmly fixed in my convictions as essential in the successful use and broader scope of the epidermic inlay.

It is also my belief that, as yet, the remarkable possibilities of the epidermic inlay remain undeveloped and is something which merits the most careful consideration of oral surgeons at this time, particularly in connection with prosthodontics.

It seems to me now that the possibilities offered by the epidermic inlay in lining pockets for the secure retention of dentures and improvement of facial appearances are so great that it becomes the duty of oral surgeons to carry these facts to the prosthodontists to the end of increased efficiency in both instances and greater comforts to humankind.

The great value of the epidermic inlay has already become well established for use in the oral cavity in the release of adhesions, flap and other raw surface coverings and other similar purposes but for its assistance in providing more secure attachment, increased functional value and improvement of appearances in prosthetics, I do not believe that its value has been sufficiently impressed upon the prosthodontists and to this extent do I believe that oral surgery is liable to prosthodontia for neglect in dissemination of knowledge and usefulness of purpose.

Many interesting and valuable facts occur to me among the details of

*Read Before the Section of Stomatology, American Medical Association, Boston, Mass., June 10th, 1921.

A treatise based on the Experiences of 1919-1920, in Association with Lt. Cols. Rob't. H. Ivy and Jay D. Whitham, M.C., U.S.A., in the Surgery, and Capt. Roy L. Bodine, D.C., U.S.A., in the Mechanical and Prosthetics.

this subject, and many invaluable experiences which establish the premise of my claims will have to be withheld, owing to the short time allowed for presentation of subjects before this Association, therefore let us forego all of the surgical principles and confine our thoughts to debate on the pre-operative and postoperative *mechanical principles*, essential in the far-reaching and best results of this operation.

The history of the use of a thin shaving of epidermis, or Thiersch, as a free graft for the purpose of lining cavities is rather vague and literature dealing with the subject has not been found by myself prior to the reports of Dr. J. F. Esser, M.D. of Holland, who used it while engaged in plastic surgery in the early part of the recent Wars, (about 1915) at Reservespital No. 8, Vienna, Austria.

Dr. Esser styled this operation the "epidermic inlay" and in his first writings on the subject he states as follows: "For a long time many surgeons

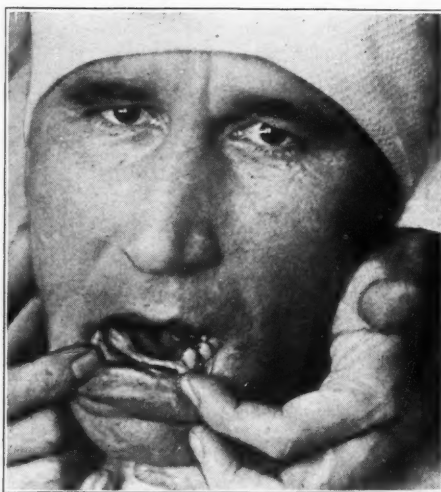


Fig. 1. Obliteration of lower labial sulcus, path of missile, lower lip adherent.

have endeavored to obtain a skin covering by laying on Thiersch skin pieces in hollows and on wounds. For hollows, these measures were mostly not sure of success and have not been generally applied, though a keen interest has been taken through many good results. I thought the uncertain results could be avoided by improving the irregular growing together of the skin and the pieces laid on, therefore, I looked for a means of applying the Thiersch faultlessly even and under equal pressure."

Dr. Esser then describes his original method of conforming dental modelling composition into the area, over which the Thiersch graft, (taken preferably from the inner surface of the upper arm) was draped, then the "Stent" (named for a dental compound made by Stent, which he used for this work) was thus buried into the cavity with the deep surface of the graft in contact with the raw surfaces and closed by suturing the margins together.

At the time of his writing, he had employed the epidermic inlay successfully in seven types of operation, as follows:

- “1. Enlargement of conjunctival sac.
2. Construction of part or entire ear.
3. Enlargement of mucous membrane of mouth.
4. Enlargement of the hollow of the mouth.
5. Plastic of hard and soft palate.
6. Preparation for different skin plastics.
 - (a) Inner coverings of flaps.
 - (b) Former coverings of the secondary defect.
 - (c) Both purposes at once.
7. Plastic of the urethra.”

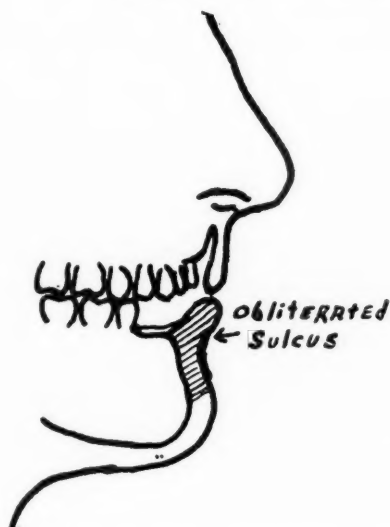


Fig. 2.—Diagrammatic cross-section, showing adherent tissues.

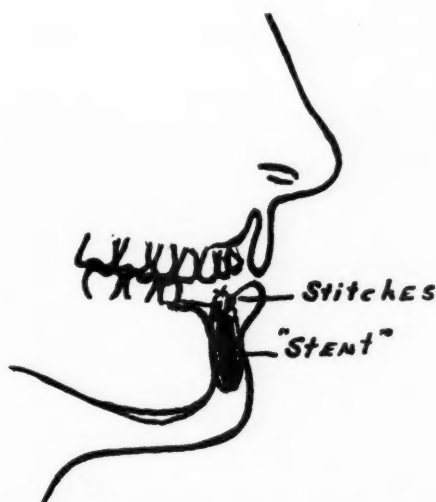


Fig. 3.—Diagrammatic cross-section, epidermic graft planted on a buried "Stent," closed by suture.



Fig. 4.—Diagrammatic cross-section, demonstrating objectionable rough margins at orifice of incised region, after removal of a sutured-in "Stent."

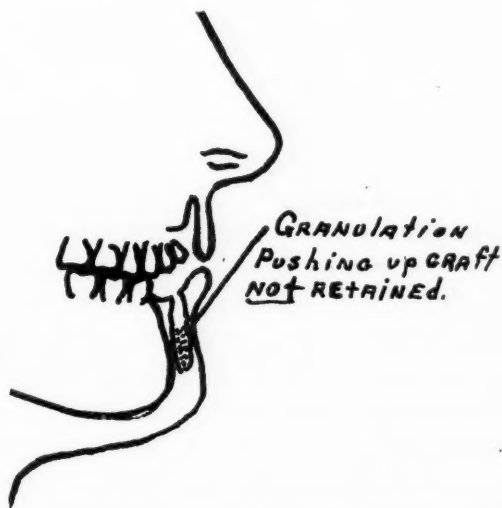


Fig. 5.—Diagrammatic cross-section illustrating the rapid granulation of the tissues beneath the graft which does not affect the nourishment but pushes it out of the desired position, if not retained.

In groups 3, 4 and 5, in which we are interested, he states that after a fortnight the area would be opened, preferably with scissors which would "follow the thinnest line of the healed margins."

As to the problem in which we are most concerned in this paper, i.e., the retention of the depth of the newly healed and unseasoned sulcus until the prosthesis was inserted, he does not state his experiences but it may be clearly grasped by the reading of his entire article that he recognized great future usefulness and improvements of the principle, *at that time undeveloped*.

Major H. D. Gillies, of England, states: "The principle of the Esser epithelial inlay marks an epoch in surgery, and the opportunities for its application are far from exhausted."

Major Gillies does not allude to reasons for the disuse of the buried "Stent," but he shows several forms of apparatus used for sustaining the graft and his illustrations of the healed graft *in situ* showing the smooth surfaces,

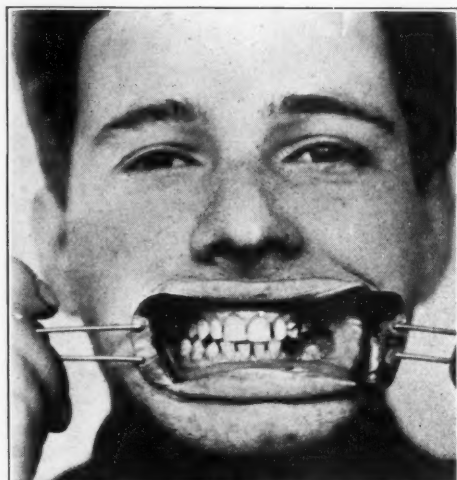


Fig. 6.—Left lower buccal vital epidermis which was pushed up to the original surface of the adhesion because of lack of retention after the removal of the "Stent."

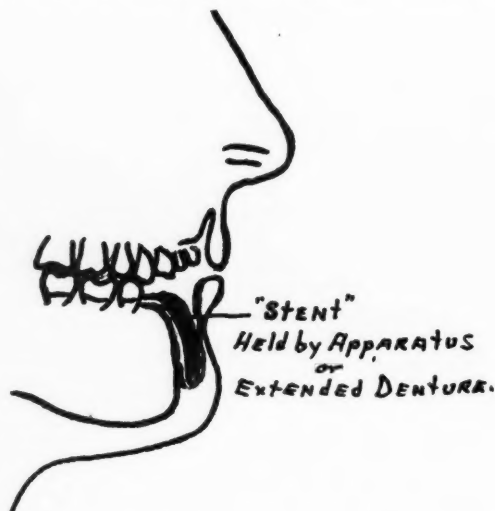


Fig. 7.—Diagrammatic cross-section illustrating "Stent" immobilized on apparatus or denture-extension and to be worn as a retainer until permanent denture is inserted.

contiguous with the mucous membrane margins, lend evidence to the fact that he and his associates recognized the difficulties caused by the ridged margins produced by the sutured in "Stent" and the dangers of lack of retention before the insertion of a prosthesis.

The French and the Canadians were also quick to apply various forms of splints and mechanical apparatus for the support and retention of epidermic inlays, but in the main, the anchorage of their devices consisted of cemented-on attachments and it occurred to me that the many objectionable features of such apparatus could be eliminated by the use of securely clasped-on devices when teeth were remaining in the arches, the construction of which, as well as their manipulation, during the operation and while constructing prosthesis were always found to be very efficacious and a source of much comfort to all concerned, thus abridging the connecting links of an otherwise clumsy or dangerous technic.

In Fig. 1 attention is called to this case wherein the lower labial sulcus was obliterated and the function of the lip was impaired by the path of a missile; this case being shown to illustrate typically the basic principles which we desire to discuss.

Fig. 2 illustrates diagrammatically a cross section through this region, showing the tissues adherent to the outer surface of the symphysis and the alveolar border.

Fig. 3 shows the incision of this region, close to the bone in which the epidermic graft has been planted on a buried "Stent," and closed by sutures.

Fig. 4 illustrates the general appearance of the tissues upon the removal of the "Stent" and which the oral surgeon should realize, are exceedingly objectionable, both for the proper insertion of a denture and the cosmetic appearance of the lip, there being produced a rough margin along the alveolar border, which is very bad for the prosthodontist and which is obliged to

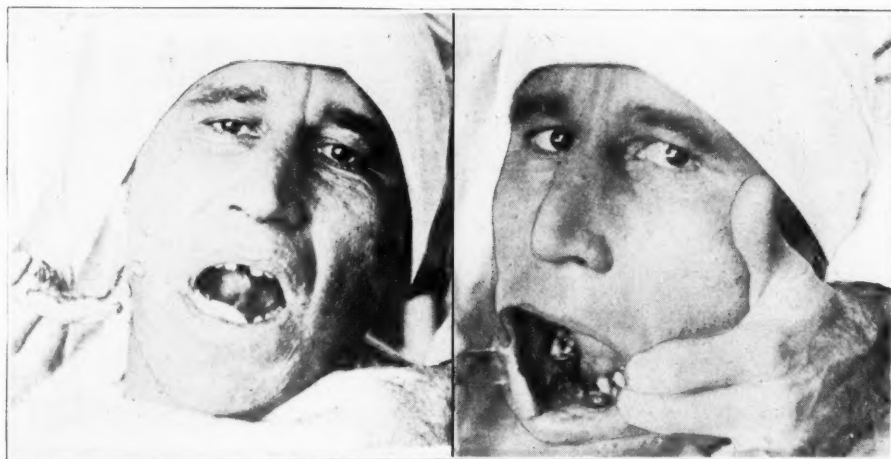


Fig. 8.

Fig. 9.

Figs. 8 and 9.—Graft on "Stent," on apparatus, out of and in position. The speed and accuracy with which the smooth surface and uniform pressure as sighted by Esser, is controlled by this plan, prevents the ingress of saliva and other dangers attending the time of suturing.

undergo a transitory change, also a rough margin is formed on the inner border of the lip or cheek which tends to redundancy and may be conspicuous, in fact, these margins, wherever they occur in the mouth, are troublesome.

The next problem to be considered in this method is one which proves to be an almost sure cause of failure because of the fact that during the interval between the removal of the "Stent" and the insertion of the denture, the sulcus closes by granulation beneath the graft, sometimes with astonishing rapidity.

Fig. 5 illustrates Nature's plan of healing activities beneath the adherent graft which, unless retained in its original position, will be forced out of place; it is just at this stage that this operation becomes adverse to the laws of healing and must be retarded by mechanical resistance which the sutured-in "Stent" does not supply.

Fig. 6 shows a result wherein the unretained graft was forced upward to

the original surface and although vital and successful in every other particular, rested in a shriveled mass from lack of retention and was a failure.

Fig. 7 shows the appearance of a "Stent" held securely into position mechanically, wherein the margins of the incision are free and smooth.

Figs. 8 and 9 show graft on "Stent" attached to Jackson apparatus, out of, and in position, illustrating the speed, accuracy, control and security of this plan wherein the operator is thus relieved of the liability of the en-

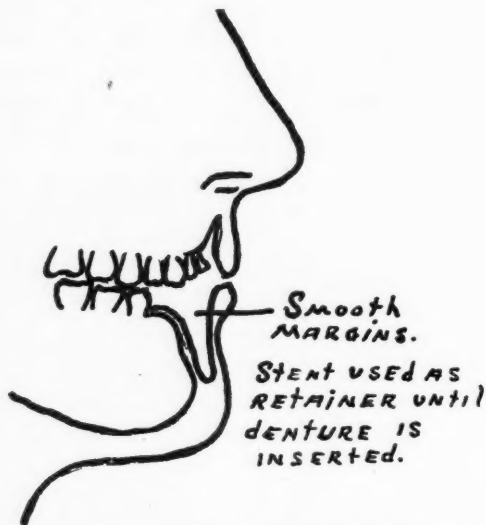


Fig. 10.—Diagrammatic cross-section, illustrating smooth alveolar and labial margins at orifice of graft, very much to be preferred for the prosthesis and for the cosmetic effect of lip.

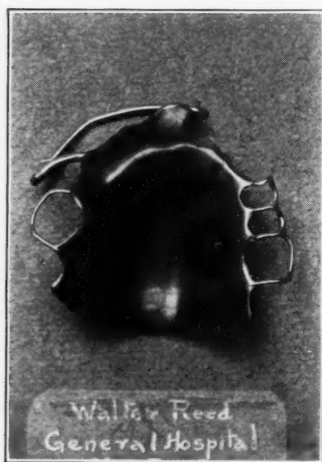


Fig. 11.

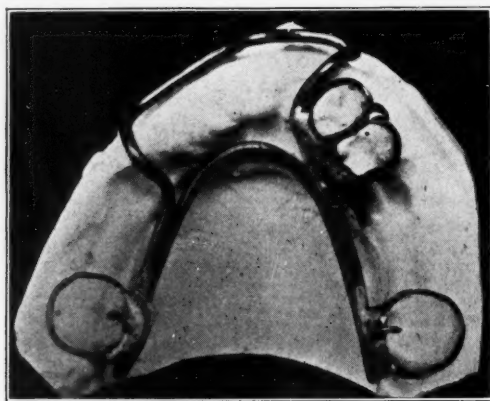


Fig. 12.

Figs. 11 and 12.—Typal forms of apparatus, upper and lower, where teeth are present.

croachment of saliva during the process of suturing and it is believed that the rigidity of this support is greater and better for the mouth than a "Stent" which, although sutured, is not free from movement by the muscles.

Fig. 10 a diagram to illustrate the smooth surfaces of the graft, contiguous with the margins of mucous membrane.

Figs. 11 and 12 designs of Jackson regulating apparatus with secure

spring-clasp attachments and loops for the attachment of the "Stent," all of which can be worked with freely during operation, and worn as a retainer.

Figs. 13 and 14 photographs of the apparatus used for the graft and as a retainer until the denture was ready to insert.

Fig. 15 obliteration of upper labial sulcus, lip adherent to alveolar border.

Fig. 16 shows photograph of denture made to fit the defect with holes drilled in superior border for the attachment of modeling composition.

Figs. 17 and 18 after incision of the sulcus, modeling composition added to the denture over which the epidermic graft was placed, this is perhaps one

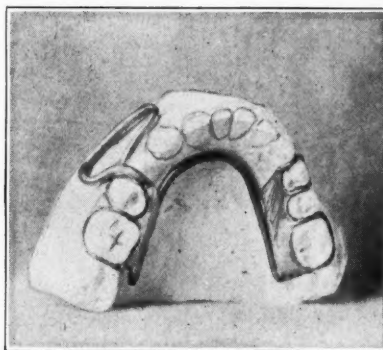


Fig. 13.

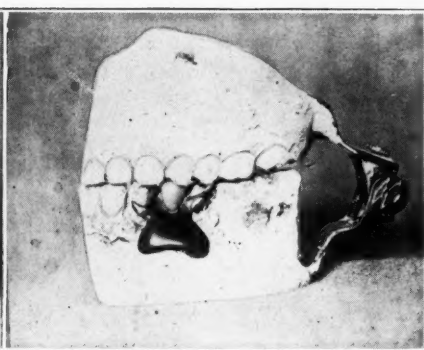


Fig. 14.

Figs. 13 and 14.—Apparatus used to support graft and as retainer, also the denture.



Fig. 15.—Obliterated upper labial sulcus, lip adherent to alveolar border.

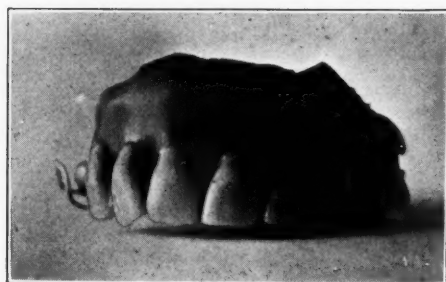


Fig. 16.—Illustrating the principle of perforating the border of a denture, previously made to fit the defect and to provide for an extension of modeling composition during the operation.

of the best methods when possible to employ it, because it is a comparatively simple matter to reproduce the modeling composition with vulcanite later.

The next question to be answered is what shall be done for the mechanical support in edentulous arches.

Fig. 19 illustrates a very simple apparatus for the maxillæ, consisting of a swedged metal plate fitting the forehead with loops of wire soldered to the borders, to be engaged to a plaster bandage head-cap, the square tubes



Fig. 17.

Fig. 18.

Figs. 17 and 18.—Denture with modeling composition added and after it is inserted bearing the epidermic graft. The lips are being voluntarily retracted by the patient.



Fig. 19.—Apparatus for sustaining "Stent" and retaining graft, edentulous upper. Plaster bandage cranial cap, swedged frontal plate with attachments for adjustable intra-oral stage, made for attachment of modeling composition during operation.

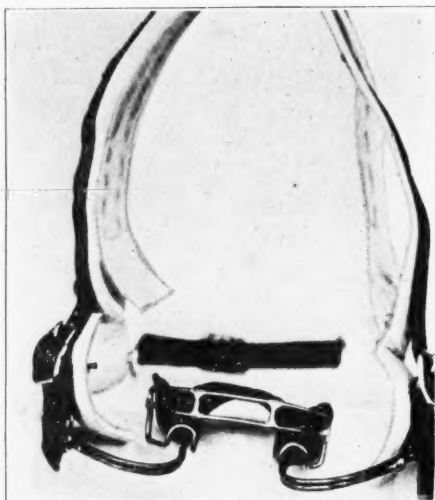


Fig. 20. Apparatus for sustaining "Stent" and retaining graft, edentulous upper. Kingsley principle anchorage with removable "grid" made to fit in parallel, horizontal, anterior-posterior tubes for attachment of modeling composition during operation.

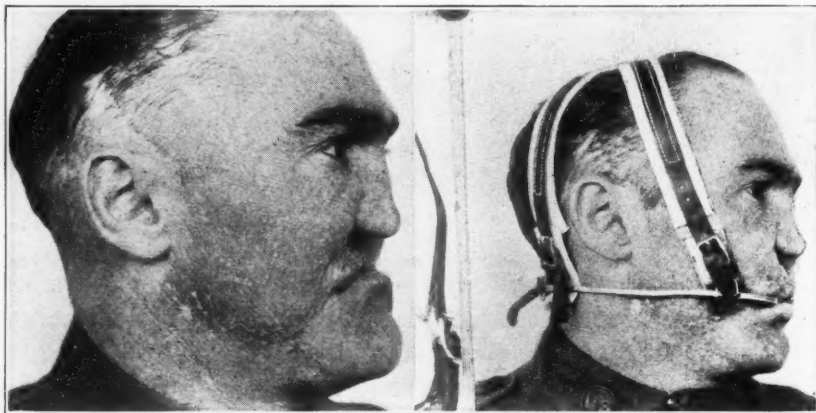


Fig. 21.

Fig. 22.

Figs. 21 and 22.—Adherent labial and buccal tissues and appearance after operation with epidermic inlay supported by plumper of modeling composition on "grid."

This apparatus was also worn as a retainer until the denture was completed and ready for insertion.

soldered to the frontal plate contain set-screws for an adjustable intraoral stage, to which the modeling composition is added during the operation.

Fig. 20 shows another form of apparatus employing the Kingsley principle of anchorage, with an anterior "grid" made of 12-gage wire which is adjustable to the plate by means of parallel, horizontal tubes, to which the modeling composition is to be added during the operation.

Figs. 21 and 22 illustrate contracted lip-graft and adherent buccal tissues, before and after insertion of epidermic graft, supported by the apparatus.

The case shown in Figs. 23, 24 and 25 required the construction of a very tedious, two-section denture which is here shown, dis-assembled, assembled, and in position. The apparatus was enabled to be worn during this period,

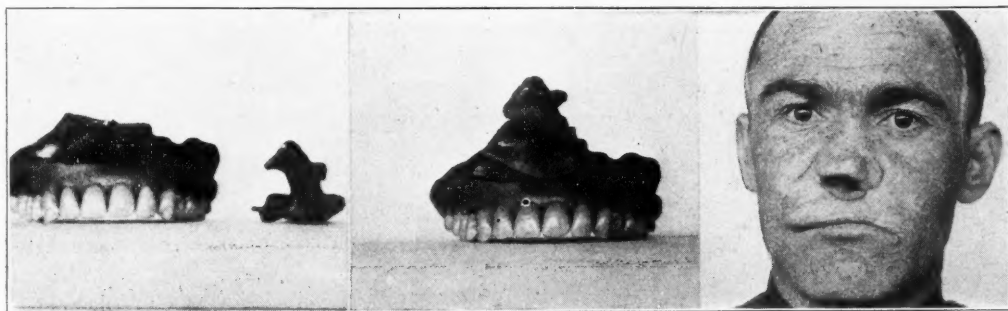


Fig. 23.

Fig. 24.

Fig. 25.

Figs. 23, 24 and 25.—Two section prosthesis, disassembled, assembled and in position.



Fig. 26.

Fig. 27.

Figs. 26 and 27.—Complete obliteration of mandibular buccal and labial sulci, apparatus and modeling composition.

The intra-oral portion consists of a No. 12 gauge wire loop, specially fitted as to size and adjustable to outer chin-clamp.

preventing the loss of the surfaces which were made into models for its construction, otherwise the result of the graft would have been lost.

Figs. 26 and 27 show an edentulous mandible with obliterated sulci, such that a denture was physically impossible. In the first epidermic graft a simple buried "Stent" was used, but before the denture was completed it no longer fitted the unretained surfaces. A chin-clamp was taken from a saliva controller, to which a specially fitted wire loop was adjusted for the intraoral attachment of the "Stent," with the particular intention of its being worn to retain the space until the denture was completed.

Figs. 28, 29 and 30 the apparatus in position, also how it appeared while it was being worn until the tedious denture was made.

It was a great pleasure to personally see this patient masticate with comfort on this denture and to many of those of you present here today who did his bone-grafting and soft tissue plastics, and remember him as he was, this must be very pleasing.

It is not claimed that it is impossible to acquire success by the simple implantation of the "Stent" but it is believed that results are so much more greatly assured by mechanical support, that Nature's adverse tendencies to this operation are so much better controlled, and that the general facility of this plan more nearly fulfills the requirements which this work should include.

The motion picture to be shown now is self-explained and is intended to show certain details in the technic of this operation.

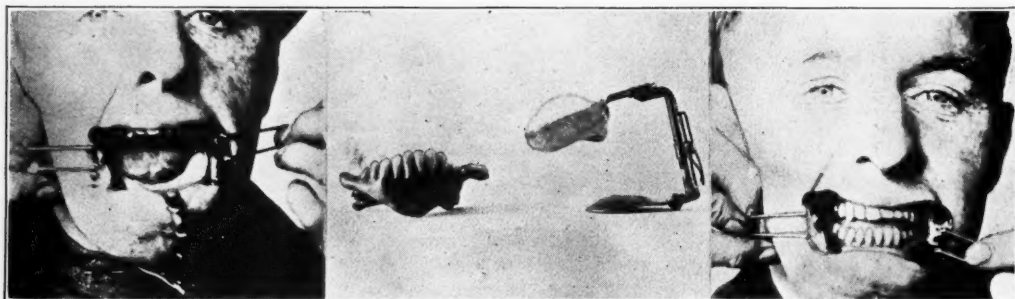


Fig. 28.

Fig. 29.

Fig. 30.

Figs. 28, 29 and 30.—Apparatus in position after operation. Apparatus as it was worn during construction of denture and the denture. Secure and functionable denture in position.

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- Esser, J. F.: *Ann. Surg.*, March, 1917.
 Gillies, H. D.: *Text Book of Plastic Surgery of the Face*.
 Eby, J. D.: *Jour. Nat'l. Dental Assn.*, July, 1920.

DISCUSSION

Dr. Ferris Smith, Grand Rapids, Michigan.—Dr. Eby has so clearly and consistently presented this subject that there is little one can discuss without duplicating what he has said. The retaining apparatus which he has demonstrated to us was a new idea to me and appears to be quite superior to the one we are using at Queen's Hospital. It was much easier of application and much easier to remove and clean after the fifth or sixth day. Dr. Eby has emphasized, but it would not seem to me sufficient, the necessity of keeping this modeling compound in the cavity until all granulations have occurred. He has indicated that procedure two or three times, but it seems to me that he should lay more emphasis on it. I have seen a beautiful inlay spoiled on the twentieth day by contact, due to the failure to keep the apparatus in until contraction was complete. These suggestions occur to me. It is an almost absolute certainty that this graft will grow in the presence of the mouth secretions. I have seen those grafts grow in the presence of pus in the mouth. One would not expect a graft to grow in the presence of pus.

There is just one other point I want to bring out. It is just a difference of technic in one case. That was the last case he showed. That was the case in which there has

been extensive bone loss and soft part loss, the soft parts being restored first and the subsequent bone graft inserted and a sulcus established and making possible the insertion of the denture. Gillies attacked this problem in a little different way in the matter of using an inlay and what he called an outlay. He divided the two layers of skin. The incision was made under the skin and the outer layer of skin dissected from the bone, then the modeling compound introduced from below and the wound closed from below. The purpose was to prevent possible infection of the bone graft. The modeling compound was left from six to eight days, at the end of which time the lip was incised from above and the modeling compound taken out from the inside and the same principle was followed as here, making sure that no secretions would get on the graft during the process of healing.

One point in conclusion: The apparent metamorphosis of the skin after long residence of a graft. The skin takes on a pinkish white color like mucous membrane. Epithelization apparently ceases and for all intents and purposes it is a mucous membrane.

Dr. V. H. Kazanjian, Boston, Mass.—Dr. Eby, in a concise and well-illustrated paper, has called to our attention the usefulness of the Esser method of skin grafting in war injuries of the face and mouth and also has given us many valuable suggestions for the possible use of this method in civilian practice, especially in certain abnormal conditions of the mouth where fitting artificial dentures is difficult.

Unquestionably our operative measures for the restoration of the face would have been greatly handicapped if the Esser method had not been devised. To illustrate this point allow me to cite you a case of a patient who lost the entire body of the mandible, leaving a lacerated, but otherwise intact but unsupported, facial tissue. In order to hold these tissues in their normal contour and avoid serious deformity, it was necessary to make an artificial substitute for the lost bony tissue on the same principle as artificial plates are made. The retention of such a plate is a problem, as can be readily seen, since anatomic landmarks of the mouth are destroyed by the loss of the bone and the presence of scar tissue. This difficulty was overcome by adding flanges to the anterior and buccal aspects of the plate. These projections rested in pockets lined with epithelium in the buccal cavity. Thus the soft tissues and the plate gave mutual support to each other.

Undoubtedly there will be many conditions in civilian practice where this method will save us from serious difficulties as Dr. Eby has mentioned in his paper, yet, it must be experience that will show the extent of its usefulness in prosthetic restorations of the mouth.

In order to adapt this method to civilian practice, great care and judgment must be exercised in the selection of cases for the following reasons: (1) Because there is always danger of any new device or operation being overworked. (2) It may give incompetent prosthetic dentists a ready excuse for their failures in fitting plates.

Dr. V. P. Blair, St. Louis.—I know that avascular grafts were used long before the war for making the lining of the eye, the conjunctiva, which would correspond to the Walden plan outlined by Dr. Eby and to the plan of Gillies. Dr. Bond of this city told me that some years ago Dr. Abby of Washington made or attempted to make an artificial vagina from mucous membrane. Dr. Bannister, of Kansas City, made a conjunctiva from a full thickness of mucous membrane and I believe full thickness mucous membrane will prove more satisfactory than the Thiersch graft.

The incisions shown for harelip are about one hundred years old and are about as new as most things we have on this earth.

Dr. Joseph D. Eby, New York (closing).—I am sorry that this subject is so entirely out of place in an otherwise beautiful surgical and pathological program and had I the censoring of this program, it would have been withheld.

Knowing that there are differences of opinion regarding the operative technic, my hope, in presenting the mechanical phases of this subject here today, was to stress certain points upon which the best successes have been entirely dependent in my hands and which are regarded as unimportant by many, which is nothing more than a very wilful attitude of personal indulgence against the best possibilities of a very valuable operation, in my estimation.

Dr. Smith's manner of discussion based on his exceptional experiences and knowledge of the epidermic graft have been most interesting to me and with the remarks of Dr. Kazanjian coming from an old master, I have nothing to say in comment excepting to urge that their concepts should be carefully heeded.

From Dr. Blair's references as to the first time of use and origin of the epidermic graft, it may appear to some that Dr. Esser is given this original credit. This is not intended, and upon noting certain quotations from Dr. Esser himself, it will be found where he states:

"For a long time, many surgeons have endeavored to obtain a skin covering by laying on Thiersch skin pieces, etc."

It is the plan of mechanical support to which I was thus extending historical credit to Dr. Esser.

DEPARTMENT OF DENTAL AND ORAL RADIOGRAPHY

Under the Editorial Supervision of

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It is the object of this department to publish each month original articles on dental and oral radiography. The editors earnestly request the cooperation of the profession and will gladly consider for publication papers on this subject of interest to the dental profession. Articles with illustrations especially solicited.

THE NEGLECTED PHASES OF DENTAL ROENTGENOLOGY

BY WILLIAM A. LURIE, M.D., NEW ORLEANS, LA.

ROME was not built in a day. Neither was any great or important undertaking completed without great effort and much time.

Dental roentgenology is an important undertaking in medical science. It is comparatively a recent acquisition. Many discoveries of note have been made possible because of it. Much criticism for unnecessary and untimely treatment and surgical operations has been hurled against it.

Today, though roentgenography is undertaken and practiced by ever-increasing numbers, there is a corresponding increase in number who are frank enough to confess their limited understanding of the subject. The reason for this discrepancy must be sought out and if possible rectified, before so valuable an asset in medical and dental diagnosis is discarded because of a lack of unanimity.

Analyzing the situation there is one thing which becomes immediately apparent and that is the difficulty of the present terminology in reference to the subject. Our language is confounded much as it was at the building of the Tower of Babylon. If a terminology which is not comprehensive and elastic enough to encompass the subject is not determined on, or adopted, many days will pass before a truly concerted effort in roentgenology can be looked for.

A terminology such as should be used in connection with the subject of "x-ray" should be one which in no way can be confused with any other subject. It should be distinctive, descriptive and comprehensive. It should permit of a proper coinage of additional terms, that by their use, words of individual purpose will be developed and not words of indistinct meaning or words easily confused.

Up to the present many names have been adopted. They have ranged from the use of the name of the discoverer, William Conrad Roentgen, to a

prefix suggesting an electric or potential force. The former of the names is perhaps the least confusing, but not descriptive. The latter, while in a measure descriptive of the force applied, is confusing in its similarity to other electrical force and phenomenon.

The author has often suggested a term which not alone is distinctive, but also distinctly aids in the determination of the local condition which produces the picture.

In x-ray photography, the picture is produced by virtue of a definite power in the rays which emanate from an active x-ray tube. That power differs from the power of ordinary rays of light from any form of luminous point, in that the rays, after passing through otherwise opaque bodies, retain the power of reducing the salts of silver on the sensitive film. This reduction takes place in proportion to the residual force retained by such rays as have passed through the intervening or pictured body. The power which x-rays possess, which ordinary rays of light do not, is the power of penetration.

By virtue of the power of penetration, the rays which are generated in an x-ray tube pass through masses,—in this instance those masses are tooth structure and jaw bone as well as their surrounding masses of soft tissue.

Experimentally it has been proved that x-rays penetrate an evenly dense body in direct ratio to the mass of distance through such a body, through which the rays must travel. An early and efficient guide to the power of a set of rays was constructed of metal. Its virtue lay in the degree of density produced on the exposed plate, by a given exposure of certain intensity to determine the correct time to allow a tube to be active. This device is called a Penetrometer.

It has long been recognized that penetration is the particular virtue of the x-ray. Too bad that in the later years, when looking for a name to apply to this branch of science, that the word penetration was not more strongly urged. By using a corrupted prefix derived from the word penetrate or penetration, as "peneto," all the words necessary and descriptive of this particular branch of the arts can be formulated and more easily understood.

A partial list of the more common terms substituted for those in use today is appended.

Penetometer, a means of measuring penetrating power; in this instance of x-rays.

Peneto ray, a phenomenon in physics the application of which was discovered by William Conrad Roentgen. The most pronounced and useful quality of these rays being their power of penetration.

Penetology, the study and use of the roentgen ray as applied to medicine and surgery.

Penetologist, one skilled in Roentgenology, in its application and interpretation.

Penetogram, the shadow picture produced upon a photographic film by the penetration of an otherwise opaque mass by roentgen rays. A registration of the penetration of light rays.

Penetography, meaning the making of shadow pictures by roentgen ray penetration. The art of making roentgenograms.

Penetotherapy, treatments by the application and penetration of the roentgen ray.

Penetodermatitis, skin reaction due to too strong or too often repeated application of the roentgen ray. A pathologic condition of the skin.

Penetographic examination, the examination and study of the shadow pictures produced by the Roentgen ray upon the photographic film or fluoroscopic screen. The translation of light and shadows into the arrangement of parts as known to exist. In this instance the explanation refers to anatomic arrangement of parts.

Peneto diagnosis, diagnosis by aid of the Roentgen ray. The association of the finding of anatomic changes made visible by the penetoray with symptoms of disease.

Pathopenetography, the study of pathologic lesions as revealed by the roentgenogram; it implies, and renders imperative, a knowledge of the pathology and of the interpretation of normal and abnormal tissue and its position as recorded in the roentgenogram.

Penetoize, to apply the roentgen ray.

Penetoization, the application of the roentgen ray.

Penetoism, the untoward effect of the roentgen ray.

Peneto-interpretation, the interpretative branch of roentgenography. The making of diagnosis from roentgenograms.

The use of the terms as above described, and the explanation of the variations on the pictured film as a variation in penetration and in penetrability will permit of an easy disassociation of pathology from the actual existant condition, so that an area described may be said to be of lessened or increased penetrability over the normal for the area, rather than to be considered degenerated or even abscessed.

There is, of course, the necessity of understanding just what process takes place in the bone area, covered by the soft tissue and out of sight, before one can undertake a diagnosis. The author has carefully studied the subject of roentgenography, particularly the portrayal of the dental areas, with an idea of developing better and more simple diagnosis of the conditions and a better understanding of the associated pathology, and in his opinion, considering the x-ray picture as the registration of the penetration of light through an area of various densities, simplifies the subject and makes possible a more accurate and understandable terminology. It is to be hoped in the future, for the purpose of standardization, the terms in roentgenology will be simplified and coordinated.

Why not "Penetology?"

DENTAL X-RAY FILM HOLDER*

By H. E. HARVEY, LIEUTENANT COMMANDER, DENTAL CORPS, UNITED STATES NAVY

A VERY ingenious and practical film holder has been developed and patented by Lieutenant H. G. Ralph, of the Dental Corps. It consists of two parts, the holder of which goes in the mouth of the patient, and a removable guide or pointer which can be detached after the holder is in position. A portion of the holder projects as a flat metal lug at right angles to the plane of the

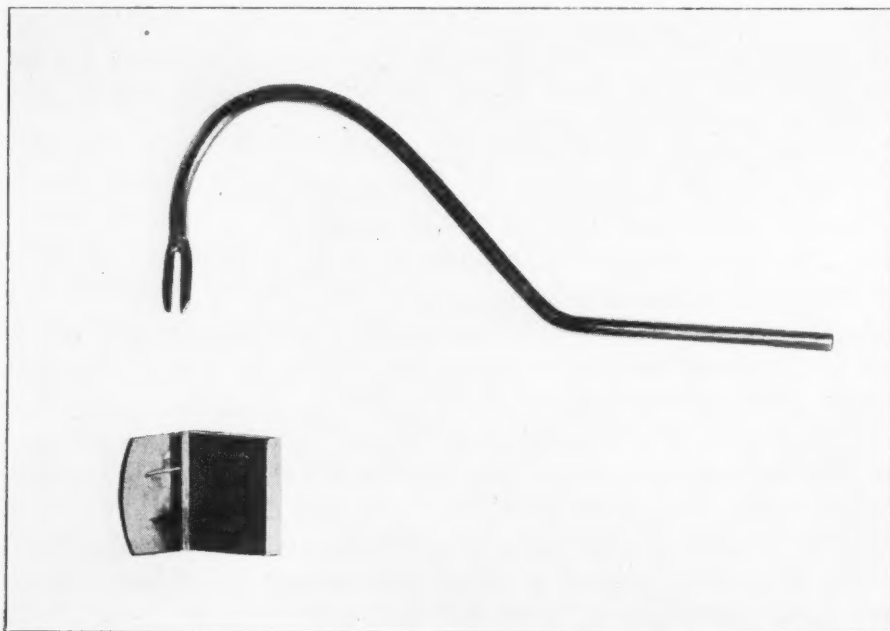


Fig. 1.—Holder and Pointer.

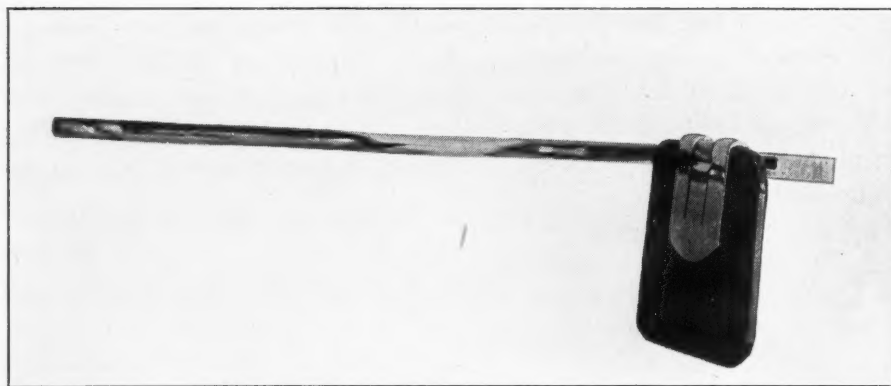


Fig. 2.—Film in holder, pointer attached.

*Reprinted by permission from United States Naval Bulletin, October, 1921.

film, and this lug is held firmly between the closed teeth of the patient while the x-ray is being taken.

The construction and use of this type of holder presents the following advantages:

First. The film is held behind the selected teeth without the possibility of slipping.

Second. The area necessary to obtain a definition of the apices is covered.

Third. The jaws being closed allow relaxation of the adjacent muscles, thus frequently obviating the tendency to gag, particularly when raying the lower posterior molars.

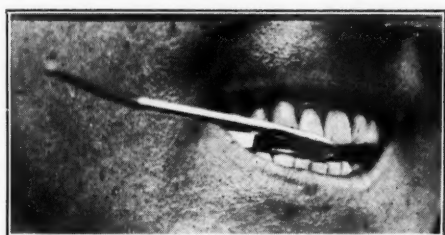


Fig. 3.—Holder and film in mouth, pointer attached.



Fig. 4.—Film and holder in mouth, pointer detached.

Fourth. A removable pointer indicates the plane and position of the film after it has been inserted in the mouth and the jaws closed, which is a material aid in getting the correct angle for the tube.

Fifth. The holder and pointer are entirely of metal, and can be sterilized by boiling.

Sixth. The appliance is of sufficient durability to be practically indestructible.

In lieu of a more detailed description illustrations are given.

ABSTRACT OF CURRENT LITERATURE

Covering Such Subjects as

ORTHODONTIA — ORAL SURGERY — SURGICAL ORTHODONTIA — DENTAL RADIOGRAPHY

It is the purpose of this JOURNAL to review so far as possible the most important literature as it appears in English and Foreign periodicals and to present it in abstract form. Authors are requested to send abstracts or reprints of their papers to the publishers.

Histology and Pathogenesis of Pyorrhea Alveolaris. Fleischmann and Gottlieb (Vienna). *Dental Cosmos*, April, 1921, lxiii, 4.

The authors conclude their serial article with the following summary: they agree with others that atrophy of the bone is the essential causal requirement, and have seen cases in which atrophy was the only pathologic condition present. At the same time it must be admitted that the bone may be involved secondarily to inflammation of the soft parts. The bone atrophy can proceed only from a constitutional factor. The mechanism by which this atrophy produces pyorrhea will be discussed in a separate paper, as far as the clinical requirements are concerned; in this connection only certain anatomical data may be mentioned. After the atrophy is initiated the epithelium of the gum begins to proliferate down along the cementum, beginning at the point of attachment to the latter, and in this way separation of the two tissues forms the pocket. Inflammation may now be set up by any one of a number of possible irritants, provided that the irritation is persistently applied. An ulcer eventually forms in the pocket from which the pus of the disease is secreted. The bone may be involved secondarily but this, as stated above, should not cause any confusion with the primary atrophy of the osseous tissue. The periodontium appears to be immune in this process, which explains why pyorrhea is painless. The primary atrophy of the bone may or may not be accompanied by retraction of the gums.

"Atresia of the Palate." T. W. Brophy (Chicago). *The Journal of the National Dental Association*, May, 1921, viii, 5.

The author has seen five cases of this very rare condition in the past four years. Study of the literature of the subject shows that this is meagre. The author uses the term as a synonym of adhesions between the palate and pharyngeal wall. For some reason surgeons seem unwilling to operate on these cases. A diagrammatic view of a case of the author's shows in sagittal section that the posterior wall of the soft palate adheres to the posterior wall of the pharynx in such manner as to shut off the nasopharynx from the oropharynx. Hence the condition should preferably be called atresia of the

pharynx from palatal adhesions, and not atresia of the palate. Only a canal or passageway can be thought of as atretic; hence we speak familiarly of atresia of the anus, vagina, etc. In one of the author's cases the patient, a boy of 9 years, had developed atresia of the pharynx as the result of an operation for the removal of the tonsils and adenoids. The atresia was total as shown by the accumulation of the nasal secretions above the adhesion. These subjects obviously cannot blow the nose and to secure drainage it is necessary for them to lean forwards at intervals and to allow the accumulations to escape by gravity. A physician had made transverse opening in the adherent palate to give temporary relief. In operating, the surgeon's aim must be to prevent readhesion of the detached palate. A mouth speculum having been introduced a heavy silver probe was passed through a nasal fossa to serve as a director for detaching the palate from the pharynx with the knife. Catheters containing silk sutures are now passed through the nose and out of the mouth and a soft rubber pad with perforations for sutures at the corners is interposed between the palate and pharynx, tied in and left *in situ* for three weeks. The two upper sutures are tied together at the columna nasi, a stuffed rubber glove finger being interposed to prevent tension on the soft parts; we do not see any mention of the point of attachment of the lower sutures unless to the upper dental arch.

Dental Education of Medical Students. T. W. Brophy (Chicago). Dental Cosmos, April, 1921, lxiii, 4.

In the course of a general article on the trend of dentistry the author relates that in 1915 he made an inquiry into the number of medical schools which gave courses in oral surgery. Of sixty-four colleges which replied, but six gave such a course. In a small country like New Zealand, no medical student can graduate unless he has devoted one year to the study of the dental organs and the treatment of their diseases. There is nothing like this in the United States or throughout Europe. The author does not of course advocate teaching medical students the technic of dentistry, for that would be to add three more years to his course. He would teach knowledge of the pathological conditions of the teeth and how to recognize them. The entire course would be somewhat as follows: origin and development of the teeth, minute anatomy and physiology, the pathology as above stated, the influence of diseased teeth on the general health, such as their part in forming the initial lesions of trigeminal neuralgia. He would teach the diagnosis of pulpitis, pericementitis, periostitis, alveolitis, dental alveolar abscess with its sequelæ—maxillary osteitis, caries and necrosis of bone and empyema of the antrum—, injuries and diseases of the terminal branches of the fifth nerve, especially the third or inferior maxillary division, and rhinitis attended by suppuration. The student should also be able to recognize excementosis, pulp nodules, inflammation of the glands, synovitis, myelitis, tumors and cysts of dental origin, etc. Among the causes of facial neuralgia are the results of thermometric changes on the fillings of the teeth and the pressure of artificial dentures

on the terminal branches of the fifth nerve. The student should know that large amounts of pus which exude about the necks of the teeth depress the vitality.

Some of the Present Tendencies in Dentistry. C. N. Johnson (Chicago). *The Pacific Dental Gazette*, May, 1921, xxix, 5.

The author first mentions the increased interest by dentists in society work. Attendance is large and interest keen. The latter appears to be due to extreme attitudes and practices which will need curbing. Partial replacement is a subject of universal interest today, but there are marked differences as to how this is best effected. Some of the ablest men are committed to certain methods, to the exclusion of all others, so that narrowness is introduced. Some would do away radically with fixed bridge-work, but such an attitude seems extravagant. We should by all means conserve whatever is good in it. There are remarkable instances in which a piece of fixed bridge-work has done good service throughout a long lifetime. Narrow viewpoints give an unconscious incentive to exploit the public; for example, to have them submit wholesale to the latest innovation of practice in the guise of a great advance in technics. The unscrupulous dentists naturally see here their opportunity to make money. The public are placed in a state of mind and their fears worked on. Wholesale extractions for focal infection with indications based on x-ray diagnosis represent another extreme viewpoint. A third is the routine application of minor surgical procedures in connection with extractions—"surgical exodontia"—and the opening up of old edentulous gums and jaws, all in the interest of the prevention or cure of sepsis. The sane dentist of the future will use each resource when it is strictly indicated and not as a matter of routine to be succeeded perhaps in a few years by some other extreme practice.

The Influence of Bucco-dental Sepsis and Periapical Foci on the General Health. J. Lagrange, *La Revue de Stomatologie*, 1920, xxii, No. 6, p. 335.

Bucco-dental sepsis constitutes an active tangible source of infection of the general organism, but on account of its obviousness is not nearly so dangerous a condition as the almost invariably undiscovered periapical infections which may, during many years, furnish a constant supply of injurious microbes to the bloodstream. In the hidden foci of devitalized and infected teeth, the blood finds a steadily renewed supply of microbes and toxins, for several millions of bacteria may originate daily at the level of the apex of a tooth, and the same individual often presents a considerable number of such lesions. The duration of the latent period is extremely variable and almost indefinite in some of the cases. In others, a rapid course leads to neighborhood complications, the least of which is represented by the formation of a fistula. Injections of cultures obtained from microorganisms derived from these foci showed that the same local and general disturbances developed in guinea pigs and rabbits as in the bearers of these infectious foci in the mouth cavity. Many therapeutic lesions are contained in these observations. The attention of the modern physician is especially invited to this subject

because the fact has been established that two infections of different origin do not become superadded in the same organism; either they destroy each other, or what is far more common, they multiply in often alarming proportions. Although some of these infections are intractable and practically incurable, it is a grave error to tolerate those which can be relatively easily eliminated. No serious general treatment can be instituted in a patient without careful investigation of the various infectious foci which he may harbor, including a thorough examination of his dental apparatus, all crowns, bridge-work, etc. The devitalization of healthy teeth should be regarded as a serious undertaking and as a probable source of periapical infection, with its dangerous sequelae for the entire organism, notably the joints.

Anesthesia in Dental Surgery. M. Ecker (New York). *Medical Record*, May 21, 1921, xcix, 21

The author has used a fifty per cent mixture of paraldehyde and anesthol over which the gases, nitrous oxide and oxygen were passed, in over 12000 cases. Naturally this association was found by him to be superior to any other tried. An average of one minute and fifteen seconds duration of analgesia is allowed for tooth extraction, while after removing the mask, even although the eye reflexes have returned, the analgesia is prolonged sufficiently for curettage of the sockets. The relaxation is more complete than under the simple nitrous oxide-oxygen mixture, and the holding straps formerly required for athletes and alcoholics are now dispensed with entirely. There has been no complaint of erotic or other dreams and no evidence of the hallucinations sometimes noted under the former plan of anesthetization. The author even uses his new method in place of local anesthesia for drilling out roots. There is less tension on the dentist at the end of the day's work as a result of the superiority of the new method. The amount of anesthol used averages 10 minims to the extraction. The composition of this anesthetic is ethyl chloride 17 per cent, chloroform 35 per cent, and ether 47 per cent. The original method of Dr. Gwathmey was to pass nitrous oxide and oxygen over this mixture, but the author modified it by adding to the latter an equal part of paraldehyde, securing slightly greater efficiency.

A New Pharyngeal Tube for Anaesthesia in Oral and Head Surgery. R. C. Coburn, New York. *The Medical Record*, July 23, 1921, c, 4.

Prevailing methods for the extraction of infected teeth are not entirely satisfactory. The method in most general use is ether by insufflation, with the tubes passed through the nares. The passage of the tube into the pharynx requires anesthesia much deeper than that needed for the extraction. Gas-oxygen given with the nasal inhaler is impracticable when the anterior maxillary teeth have to be removed and even in the case of the posterior maxillary teeth. On account of hemorrhage, it is the custom to tampon the upper pharynx. All of the obstacles may be done away with through the use of the author's flexible and collapsible pharyngeal tube, which is large enough to maintain respiration and permit the administration of gas and oxygen with the upper

pharynx packed. This tube is of spiral wire covered with thin rubber tubing. The distal end is attached to a rubber bag by means of an exhaling valve or nipple. The patient is anesthetized with gas and oxygen, using the face inhaler. The latter having been removed, the mouth gag is applied, the pharyngeal tube inserted over the base of the tongue, the pharynx well packed with gauze, and the gas-oxygen inhalation is then resumed through the tube. The latter must be fastened with a couple of strips of adhesive plaster to the patient's face (or be held in place by an assistant). The author has used this method in anesthetics of from a few moments' duration to those requiring two and a half hours.

Studies in Root Canal Sterilization. J. A. Marshall, San Francisco. *The Journal of the National Dental Association*, July, 1921, viii, 7.

The author concludes his serial article as follows: The paper correlates the laboratory study of root canal sterilization with clinical practice. The degree of penetration of antiseptics into dentin is illustrated by employing solutions of crystal violet and brilliant green. In many cases the dye penetrated through all of the dentin substance to the dento-cemental junction, but in no case was it possible to demonstrate the penetration into the cementum. In comparing the action of these dyes with that of the Howe solution (silver nitrate treatment) it is shown that the degree of penetration is apparently equal. The discoloration of the tooth structure may be controlled by varnishing and waxing the coronal portion of the tooth. The possibility of osmosis occurring between the tooth substance and the surrounding tissues is discussed. Since there is no demonstrable connection between the dentin and the cementum, except through the apical foramen, antiseptics properly applied to the walls of the root canal remain in the tissue. Finally a technic is described for obtaining permanent sterilization of the dentin.

Diet in Relation to Oral Hygiene. W. Seccombe, Toronto. *The Journal of the National Dental Association*, June, 1921.

The author arrives at a large number of generalizations on this subject. Some who are immune to caries never brush their teeth, while others who use the brush faithfully suffer from caries, because they possess some not understood susceptibility to it. But correct habits may confer immunity on some individuals. Oral bacteria *per se* are not the determining factor in dental disease because these are present alike in immunes and susceptibles. There can be no caries unless carbohydrate food is present, while salivary stasis is also invariably present—these two factors make possible the fermentation which is the forerunner of caries. Indigestion may give rise to increase of mucus and this with anatomical faults makes possible accumulation of debris. Indulgence in an excess of fermentable foods which form acids as end-products makes for caries, especially sugar and bread or flour foods; but overindigestion of any kind of food is favorable for caries. The latter may occur with or without the formation of salivary calculus. In excess of

sugar caries develops without this formation. Another factor in the production of mouth disease is gingivitis, which may arise from overconsumption of food, autointoxication, or traumatism.

The Patient's Side of Pyorrhea. L. C. Snowden, Dallas. *The Texas Dental Journal*, August, 1921, xxxix, 8.

If the dentist cannot treat pyorrhea himself he should send the patient to a specialist in that affection. It often happens that the ordinary dentist contents himself with cleaning the affected teeth. The duty of the specialist is to determine which teeth are to come out by means of ordinary and x-ray exploration. Teeth without due osseous support should come out at once without previous attempts at treatment. The patient can cooperate in the management of his case by cleansing his teeth, not with ordinary dentifrices but with powdered pumice stone and a hard bristle brush used according to a special technic which emulates that used by the dentist himself in his daily practice. The patient must rehearse the technic before the dentist. At present the national care of children's teeth leaves much to be desired and America is not so far ahead of Europe in this respect as we like to believe.

Ocular Hygiene with Special Reference to the Dental Profession. W. D. Rowland, Boston. *The Dental Cosmos*, June, 1921.

The author deals especially with the subject of illumination. He sums up by stating that lights should be placed that no undiffused rays can fall directly upon the eyes for any length of time. Northern exposure is preferable because this gives a maximum of diffusion with a minimum of glare. Localized direct lighting should be combined with a good general system, to avoid the necessity of work with a brightly illuminated area upon a dark background, which is the cause of great fatigue, because of the need of adaptation in shifting the vision. Light should come from the left and behind for the right-handed and contrariwise for left-handed. This precaution prevents the operator's hand from getting in the path of vision. The area of the windows should be in proportion to the size of the room. If it is necessary to screen windows, translucent rather than opaque shades should be used, for in the latter case necessary light may be excluded after the passing of the direct solar rays. Dark interiors and furniture are of no advantage in lessening glare, and naturally reduce the illumination, glare being often the result of contrasts. In general bad lighting means eyestrain and muscular fatigue, reduced output and more mistakes and wasted material.

Predisposing Factors of Rigg's Disease. W. H. Scherer, Houston. *The Texas Dental Journal*, August, 1921, xxxix, 8.

It is unfortunate that there is no unanimity of opinion concerning the etiology of this affection, but we now have a nomenclature which facilitates discussion of the subject. Affections of the tissues immediately investing the teeth are termed collectively Periodontoclasia and comprise recession of the

gums, gingivitis and pericementoclasia. The two first named are affections of the free border of the gum. Pericementoclasia is expressed clinically by so-called pocket formation in which the alveolar bone is affected only secondarily. In primary alveoclasia the bone is attacked without previous implication of the pericementum. In this affection pockets do not form but the tooth becomes loose from want of support. Periodontal abscess is one of two types, one of which is apical and due to pulp disease and has nothing in common with pyorrhea, while the other is parietal and may arise either in the pericementum or gum. After consideration of this nomenclature it is evident that diametrically opposed conditions leading to similar results might both be classed under Rigg's disease. However, primary alveoclasia with recession and loosening of the teeth is not a form of pyorrhea, which is an affection originating in the pericementum—a suppurative pericementoclasia, which is due to the cooperation of a number of factors which may be summed up as abnormal general conditions, mechanical and traumatic factors and bacterial invasion. The latter is responsible for the element of suppuration, but this does not occur save in the presence of other factors as indicated above.

Some Mouth and Jaw Conditions Responsible for Defects in Speech. James Sonnett Greene. *Medical Record*, July 2, 1921.

Dentistry plays a very important rôle in speech. The usefulness of the tongue in this respect has been somewhat exaggerated because in disability or absence of this organ others can to some extent take over its functions. The dentist is chiefly concerned with the rôle of teeth and palate in articulation. Defects of the lips seldom give much trouble. Of the two structures the teeth and palate, the latter is far more important because the roof of the mouth acts as a sounding board; but the connection between the palate and teeth is so intimate that there cannot very well be therapy directed to one of these structures alone. Anomalies of tooth position cause changes in the palate and also incidentally interfere with the movements of the tongue in speaking. In pronounced overbite it is difficult or impossible to pronounce the labials because the lips cannot be approximated. In pronounced underbite the interference with speech is of the same character. Inability to pronounce the sibilants may result from the absence of the incisors, upper or lower. Difficulty in the pronunciation of the dentals is due to imperfect alignment of the teeth, these consonants having a hissing sound. In certain cases *t* or *d* is actually given the *s* sound. The author goes extensively into the speech defects which accompany hare-lip and cleft-palate. It is not generally known that all cleft-palate patients are tone-deaf.

Arthroplasty of the Jaw. James M. Neff. *Surgery, Gynecology and Obstetrics*, July, 1921, xxxiii, 1.

The author reports a rather unique case of ankylosis of 7 years' duration, which had developed in an attack of uremic coma of the latter months of gestation. She had at the time a badly infected mouth with much pus which probably had come from around the teeth. The ankylosis was already present

when she came out of the coma and some teeth had to be extracted in order to feed her. She was left with a chronic nephritis and a high blood pressure—up to 170 systolic—her present age being only 39. The present condition of her mouth, up to the time of the arthroplasty, shows large abscesses and loosened teeth. Aside from the extractions mentioned above there had been no dental work. Before the arthroplasty the teeth were treated by removal and drainage of the alveoli, whereupon it was found that the nephritis had been greatly benefited. The albumin sank to a trace, with only an occasional cast. The blood pressure also came down and remained so. The x-ray of the joint did not permit of a precise diagnosis of the ankylosis—whether intra- or extra-articular. There was some retraction of the chin, the lower incisors being posterior. It was finally decided that the jaw had been fixed from without. Operation showed the joint to be normal within. Division of the two muscular attachments did not mobilize it. The left condyle and a bit of the neck were then resected and the jaws then opened. The condition was treated as an open wound and no attempt made to interpose any tissues between the bones. The mechanism of fixation was not entirely cleared up but was assumed to be the result of an abscess in the cheek with secondary scar-tissue formation involving the internal pterygoid muscle.

Dental Caries and Nutritional Therapy. E. Pohl. *Zahntechnisches Reform*, July 24, 1912, xxv, 30.

There is a concerted attempt throughout the world to raise the average of the public health. One of the most rational and practicable methods of accomplishing this end is dietetic therapy. At first sight the superior condition of the teeth in the uncivilized, whose dietetic resources are often poor, seems incongruous; for while one set of savages have to subsist chiefly on fat another eats protein in excess and a majority of all live largely on carbohydrates, yet all have good teeth. But irrespective of the question of frequency, caries is universal. The first attempt to connect caries with diet had reference to excessive use of carbohydrate especially sugars. The only classes of ingesta which bear a possible reference to caries are the carbohydrates and, among the inorganic constituents, the calcium. The first named can be fermented in the mouth to lactic acid through the aid of bacteria and under normal conditions this should be neutralized by the ammonia which is derived from the ingested albumin. In lime starvation there is said to be rapid development of dental caries. Lactic acid is also formed in the blood in metabolic disorders. In acid mouth it is assumed that there is unneutralized lactic and other acids which attack the teeth. The author introduces another element to explain the connection between diet and caries. He believes that in metabolic disorders the mucous glands of the mouth have to eliminate certain incompletely oxidized products which cause hyperemia and the formation of an abnormal and tenacious secretion. These in turn facilitate bacterial activity and weaken the natural defense of the parts, so that the development of caries is favored.

The Röntgenogram as an Index of Irritation or Infection of Dental Origin.

W. A. Lurie. *The Dental Summary*, August, 1921, xli, 8.

Dental radiography was the starting point of wholesale tooth extraction. A great blunder was made when radiograms of known infection were not controlled by plates of suspected and normal cases. On the other hand not to take plates is also reprehensible. Experience of one dentist in this field is not sufficient for a standard and each should have access to the work of a group. A plate considered by itself without the clinical history would be very misleading; it is necessary to know whether the case is acute or chronic, whether an operation has been performed, etc., before one can venture to interpret. The stage of development due to age must be known, although it is of course possible to recognize the age to a certain extent by the radiogram. Infection and irritation are much less significant in a young subject than in an old one. There is not only more tolerance but a greater degree of regenerative power. Even insignificant degrees of infection and irritation become serious when they have persisted over long intervals.

The author's indications for removal of teeth relate on the one hand to the age and vigor of the subject and on the other to the duration and symptoms. The young and vigorous subject who has great regenerative power is also able to resist toxemia. In lowered vitality a quiescent focus may become active, but merely advancing age may have the same effect. Regenerative power begins to diminish as early as the puberty period, while tolerance does not diminish until toward forty. The author would not extract in a young subject but would make use of conservative treatment, provided there was a single small focus; if there were several he would do some extraction and some conservative treatment. In middle life he does not practice routine extraction, but keeps the subjects under observation.

The Results of Surgical Treatment of Epithelioma of the Lip. W. E. Sistrunk.

Ann. Surg., 1921, lxxiii, 521. (Per Surg., Gynec. & Obst.)

The author made this study to determine the results of operation for cancer of the lip after a lapse of from five to eight years. The results in this group of cases differ somewhat from those previously reported by Judd and Beckman.

A great difference is to be expected between the results in cases in which the glands are involved at the time of operation and those in cases in which operation is performed before glandular involvement can be demonstrated. The best results were obtained when the glands that drain the lip were removed as a prophylactic measure.

The lymphatic drainage from the lower lip passes through the submental lymphatics which drain the central portion of the lower lip and the submaxillary lymphatics which drain the remainder of the lip and the anterior portion of the cheek. On account of the free lymphatic anastomosis it is necessary to remove the glands on each side.

In small growths the glands should be removed first, and the growth on

the lip immediately afterward. If the growth is extensive and a large portion of the lip must be excised, it is best to remove the glands first and the growth about three or four days later. The growth may be removed first, but occasionally infection delays removal of the glands.

The technic employed in removing the submental and submaxillary glands is as follows:

The incision, parallel to the lower jaw about midway between the upper portion of the thyroid cartilage and the symphysis of the jaw, extends from the inner border of the sternomastoid on one side to a similar point on the opposite side. The skin and platysma muscle are reflected upward as high as the jaw bone, and all of the glands and fascia of the submental region are removed. The glands, fascia, and fat, including the submaxillary and salivary glands, are removed from the submaxillary region. The ducts of the salivary glands are cut off just underneath the mylohyoid muscle, and the facial arteries and veins are cut off at the level of the digastric muscle and again at the point where they cross the lower jaw bone.

It is necessary to guard against injury to the lingual branch of the fifth nerve, to the hypoglossal nerve, and to the inframandibular branch of the seventh nerve. The hyoglossus muscle forms the base of the submaxillary triangle. All the fat down to the muscle should be removed.

If the glands on either side of the neck are involved at the time of operation, all the glands draining that side of the neck should be removed by a block dissection. The glands and fascia from all the triangles are removed as high as the styloid process. The dissection extends down to the deep muscles of the neck, the glands and fascia lying along the carotid artery and the jugular vein being removed. The phrenic nerve, brachial plexus, common and internal carotid arteries, and the hypoglossal, vagus, and sympathetic nerves should be avoided. The omohyoid and sternomastoid muscles are removed and the spinal accessory nerve sacrificed. If the internal jugular vein is involved on one side of the neck, it may be removed.

In reviewing the histories of the patients, only those who had primary operations at the Mayo Clinic during the years 1912, 1913, and 1914 were considered. After dropping from the series the cases of recurrence, incomplete operation, and those in which no data were obtained after the operation, 136 cases remained. These the author classifies in three groups.

Group 1 comprises 98 cases in which a primary complete operation was performed when the glands were not involved; that is, a local excision of the growth with the removal of the glands draining the lower lip. Fourteen of these patients are dead, 5 from diseases other than cancer. Three letters were returned marked "deceased" without further information. Six patients died of recurrence. Excluding the 5 cases of death from disease other than cancer, 93 patients remain and there were 9 deaths from known recurrences; consequently 90.3 per cent are alive from five to eight years after the operation.

Group 2 comprises 11 cases in which the glands were involved at the time of operation. In 6 cases a block dissection was done; 5 of these patients are dead, and 1 is alive five years and three months after the operation. In the

other 5 cases, on account of the patient's age or physical state, block dissections were not done, only the involved group of glands being removed. Four of these patients are dead and 1 is alive five years and eight months after the operation. Of the 11 patients, only 2 (18.1 per cent) are alive five to eight years after the operation.

Group 3 comprises 27 cases in which, usually on account of the patient's age or physical condition, the operation was restricted to excision of the growth only. Three patients died from disease other than cancer of the lip. After deducting these 3 cases, 24 remain, among which there were 5 deaths and 19 cures (79.2 per cent) five to eight years after operation.

The percentage of cures following operation was lower among the patients with glandular involvement than among those without such involvement. The percentage of five-year to eight-year cures when the glands were involved was almost identical with that obtained in cases of cancer of the breast in which the glands were involved. The percentage of local recurrences after operation seems too large. This probably could be decreased to a certain extent by wide removal of the growth and the use of radium after operation. Rapidly growing epitheliomata are best removed with the actual cautery without a plastic operation at the time.

Treatment of the growth by means of radium and the x-ray, without removal of the glands, does not seem a radical method. Radium often destroys the growth but such a procedure is almost identical with the methods in which the growth is removed with pastes or by local excision. Although there may be no local recurrence following the latter procedures, in about 20 to 30 per cent of the cases metastasis occurs later in the submaxillary and submental glands.

Salivary Calculus in an Acromegalic. C. Jones. *Ann. Surg.*, 1921, lxxiii, 527.

The author reports the case of a woman, 56 years of age, who had a tumor under the right jaw. The patient, an acromegalic of marked degree, had first noticed a hard painful swelling beneath the angle of the right jaw two or three years before her admission to the hospital. Two months previously this swelling became suddenly enlarged, inflamed and very tender. After the application of hot poultices the condition subsided. At the time of the patient's admission to the hospital a hard mass about the size of a walnut was found just below the angle of the right lower jaw, to which it was apparently attached, and though it was slightly mobile the mass suggested a skeletal exostosis associated with the acromegaly.

X-ray examination, however, revealed an opaque, probably calcified body which was not connected with the jaw. The shadow measured 24 by 32 mm. The entire lesion was removed under local anæsthesia. The pathologic examination showed an indurated submaxillary gland containing within a cavity lined with a definite membrane an irregular yellow mass of calcareous substance. This cavity communicated directly with Wharton's duct, and the calculus could be readily felt with a probe passed down the lumen of the duct.

Its weight was 9.4 gm. On microscopic examination the surrounding tissues showed a chronic inflammatory process with increased fibrous tissue.

Salivary calculi are formed from the inorganic salts in solution in the normal saliva. Under abnormal conditions these are usually deposited on the teeth as tartar, but occasionally in the salivary ducts or acini as calculi. The calculi may have bacteria, epithelial debris, or a foreign body as nuclei. The inorganic salts concerned are the carbonates and phosphates of lime, potash, and magnesium. Bacterial action or the lodgment of a foreign body sets up an inflammatory process around the orifice of a duct or acinus which causes blocking, constriction, or roughening, and the decomposition of the saliva with consequent deposition of the salts. Calculus formation gradually results, the final stage being a stone which later may be ejected if it is not of large size. Of 37 stones, Czygen found 22 in Wharton's duct, 4 in the submaxillary gland, 5 in Stenson's duct, 1 in the parotid gland, 4 in the sublingual duct, and 1 in Bartholin's duct.

Complications of salivary calculi, if untreated, may be serious. Abscess formation is the most common. Fistula may result, and necrosis of the jaw may follow a large abscess. Occasionally small stones may be removed from within the mouth but as a rule an external incision is necessary. In the diagnosis sialolithiasis must be distinguished from root abscess.

Lymphatic Varicosities of the Buccal Cavity. Chompret and Croquefer, Paris. *La Revue de Stomatologie*, July, 1921, xxiii, 7.

The authors report a personal case with extreme minuteness. The patient was a girl of 13 with a chronic tumefaction in the left cheek which was not only disfiguring but interfered with mastication and caused her to bite herself. The child had suffered from repeated angina including true diphtheria and from caries of the deciduous molars followed by abscessing. During attacks of whooping cough, measles and scarlet fever she suffered in the mouth and so much of the time did she complain of sore throat that it was difficult to trace the beginnings of the tumefaction. It was also difficult to trace the evolution of first and second dentition; one could not be sure that some of the buccal troubles were not of dental origin, aside from the known occurrence of dental abscesses. She had had her tonsils removed toward the last, and had also had considerable dental work done.

On inspection the tumefaction was seen to run from the left labial commissure to the 12 year molar. The body of the mass did not project much above the level of the mucosa but it was surmounted by a number of nipple-like prominences along the upper margin. Below, the mass was lost at the furrow between the cheek and gum. The nipple-like prominences which were scattered along the upper margin resembled vesicles. Similar formations could be made out on the continuous intact mucosa. One of the authors had reported a similar case twenty years before. From a biopsy specimen taken from one of the nipple-like processes the diagnosis was made of lymphangiectasis.

Predisposing Factors of Rigg's Disease. S. B. Riggs, San Antonio. Texas Dental Journal, August, 1921, xxxix, 8.

As a rule this affection begins at the gingival border and extends to the apex of the tooth. The causal factors from the dentist's viewpoint are malocclusion, poor dental work, poor contact points, traumatism and buccal flora. From the angle of the medical practitioner there are other predisposing factors, lowered resistance from any cause, constipation, renal disease, occupation and environment, salivary type, etc. The author is inclined to stress the latter. If the saliva be deficient in ptyalin, there will be a residue of carbohydrate food, maltose, starch, etc., mixed with mucin, deposited around the necks of the teeth and in the interstices. To these residues are added the activities of saprophytic and pathogenic microorganisms. The latter are known to reproduce themselves at the rate of twice an hour and apparently it is the toxin thus generated which behaves as the irritant of Rigg's disease. The initial step is a gingivitis and with this comes a retraction of the gum and a bacterial invasion of the periodontal membrane. With an excess of germ life and a minus state of resistance of the tissues, the bone is involved. The formation of serumal calculus is a sort of by-product, not to be understood as a causal factor. In animal experiment pyorrhea can never be caused by inoculation of virulent pus. It is claimed that experiment along these lines may cause loosening of the teeth in small laboratory animals, and that these loose teeth may be tightened up by diet and stimulation of the emunctories.

Relations Between Nasal and Dental Affections. J. D. Echemendia. Revista Medica Cubana. July, 1921, xxxii, No. 7.

The author, a rhinologist, reports five cases of this association. In the first, there was obstruction of both nasal fossae, which was complete on the right side, incomplete on the left. There was chronic pharyngitis. The reporter, who is not himself a dentist, learned that the patient had no complaint to make of her teeth, but she had not been to her dentist for two years. As there was some tenderness on pressure he referred her to her dentist and the latter found a fetid collection of seropurulent fluid of dental origin. He kept her under dental treatment for two months, at the end of which time it was found that both nasal chambers were clear. The second patient, under rhinologic treatment, had hypertrophy of the lower left turbinate bone, vasomotor rhinitis and pseudoasthma of bronchial origin. The patient had had some bridge work done which led eventually to periostitis above the amputated canine upper teeth. Under dental and rhinologic treatment the nose became normal. The third case presented the association of intranasal and dental anomalies, the latter due to bridge work. After the bridge had been taken out and an abscess opened and drained the nasal symptoms improved. The other cases were similar in character and the entire material leaves no room for doubt that infected roots and consecutive suppuration in the upper jaw cause much irritation of the nasal mucosa with simulation of hay-fever, false asthma, neuralgias, etc., produced by reflex mechanism. The swelling of the turbinals was probably of the same nature.

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EDITORIALS

Dental Nomenclature

WE HAVE before us a complete report of the Committee on Nomenclature of the Dental Editors Club of America as presented by Doctor L. P. Anthony, Chairman.

Before making a report on the actual work of the committee and names which were considered by them, Doctor Anthony states that "The literature of a profession is its life-blood. It is the medium which, circulating through the professional structure, provides for that interchange of ideas essential to its development and growth. Through its literature, also, each profession becomes acquainted with the state of development of its sister professions and each profession is judged as to its intellectual stature and the variety of its accomplishments by its literature. So also are the scientific status, exactness of knowledge, cultural developments and mental habits of the profession distinctly reflected by its literature and the retarding influence of insufficient

and defective vehicles of expression must be removed if we are to keep pace with the other learned professions."

This quotation taken from Doctor Anthony's report expresses the importance of a correct and scientific nomenclature, and one which is in keeping with other professional organizations.

Dentistry has been too prone in times past to adopt and use terms which have not been recognized by other scientific organizations. This condition is also recognized by the committee referred to, as is shown by the following quotation: "Any effort, however, to standardize our nomenclature should be made with a full consciousness of the desirability of conforming it as closely as possible to the general laws of nomenclature as already accepted by the biological sciences."

Probably the greatest faults in dental nomenclature have been found in the field of anatomy, physiology, and pathology. These three branches of dentistry are necessarily closely related to other sciences and consequently it is necessary to use terms which can be recognized by any scientific man whether he be a dentist, physician, or a biologist.

During the last few years, more attention has been given to the question of pulpless teeth. A number of terms have been used by certain speakers and writers to describe pulpless teeth, because they wished to convey a certain impression to their audience and to the public. This is shown again by the report of the committee of the Dental Editors Club of America, a quotation of which we publish in full because it describes conditions as they exist: "Dead tooth, devital tooth, devitalized tooth. These terms dead, devital, devitalized, are correct when relating to the pulp, but are in no sense correct as above used. We suggest the term 'pulpless tooth,' which we find meets all the exigencies of the case except where there is a devitalized pulp remaining in the pulp chamber, and such a condition would call for a phrase rather than a concise term to indicate it clearly." We have long known that the use of the terms "dead tooth" or "devitalized tooth" was incorrect, because modern histology shows that because a tooth is pulpless it is not a dead tooth.

Speaking of anatomic terms, we find that Doctor Anthony's committee makes the following suggestion: "Acting on the suggestion embodied in the report indicating the desirability of conforming our nomenclature to that of the other biological sciences, we submit for consideration the use of canine for cuspid; premolar for bicuspid; first molar for sixth year molar; second molar for twelfth year molar; and third molar for wisdom tooth."

We have maintained that cuspid and bicuspid were terms recognized by no other scientists except dentists, in the sense that dentists use them. The so-called cuspid is a canine regardless of the fact that some of our friends maintain that it smacks of a relation to the dentition of a dog. Nevertheless, a canine is a canine, and a canine it will always be in the biological world and dentistry, for a few men in dentistry cannot change the established scientific terminology of biological sciences. As regards the suggestion for the use of

premolar, instead of bicuspid, we have always claimed that the premolar was the scientific term for the tooth which succeeds the deciduous molar.

For some reason, we find that some men in the dental profession seem to believe that the term premolar is synonymous for the deciduous molar. We even find in dental literature, men speaking of "permanent bicuspid," when as a matter of fact all so-called bicuspid are permanent teeth. The proper use and understanding of premolar would eliminate such error.

The committee also recommended the use of mandible for lower jaw and maxilla for upper jaw in keeping with the action that was taken last year by the Dental Editors Club agreeing to use maxillary teeth instead of upper teeth, and mandibular teeth instead of lower teeth.

Another portion of the report, particularly interesting to those engaged in radiography, is a suggestion that the word *radiograph* be used as a verb, to indicate the x-ray process; *radiogram* (noun), the product of the process. The other terms recommended are of more interest to general dentistry than to orthodontia, oral surgery and radiography.

It was suggested by the Dental Editors Club of America that the National Dental Association appoint a committee on nomenclature, which suggestion was followed out.

For several years the American Society of Orthodontists has possessed a committee on nomenclature and some terms have been suggested which have been valuable to the science. However, in the face of the modern knowledge of nomenclature, it seems to be necessary to make radical changes in some of the terms, as adopted by the American Society of Orthodontists.

A great step forward was made when the terms, neutro-, disto-, and mesio-clusion were adopted, instead of Classes I, II, and III. Even at the present time we know of no better term to describe conditions of malocclusion as we understand them, than neutro-clusion. However, disto-clusion and mesio-clusion are not anatomically correct as describing the relation of the mandibular teeth when we accept the meaning of mesial and distal as used in the biological and medical sciences.

Dr. A. Hopewell-Smith of the University of Pennsylvania called attention to the incorrect use of the terms mesial and distal as employed by the dental profession in the last edition of *Tomes' Dental Anatomy*. At that time the *International Journal of Orthodontia and Oral Surgery* contained an editorial based on Dr. A. Hopewell-Smith's criticism of the terms mesial and distal. However, at the present time, after giving the matter some thought we believe that Dr. Hopewell-Smith is more correct in the criticism of the use of these terms than the dental profession is in their usage.

We believe that postero-clusion is a term more descriptive of the actual deformity that we are trying to describe, than is disto-clusion; and antero-clusion, a better name for the so-called mesio-clusion. When we consider the terms mesial and distal used in dentistry and as employed in biological and medical sciences, the dental profession has practically given the reverse meaning to the term distal when describing postero-clusion.

A Reply to "Who Should Control Dental Education"

October 22, 1921.

Dr. Martin Dewey, Editor-in-Chief,
The International Journal of Orthodontia and Oral Surgery,
501 Fifth Avenue,
New York, N. Y.

My dear Dr. Dewey:

I have been asked as President of the "so-called University schools" referred to in an editorial in the August number of *The International Journal of Orthodontia and Oral Surgery*, to reply to that singular communication. To meet *all* the errors of fact and judgment in this inverted piece of reasoning exceeds my powers as well as my patience. I beg leave, however, to point out a few of the worse misconceptions, as well as an outstanding error in argument. Possibly the lamentable weakness of dental education in cultural subjects at the time the writer of this article presumably gained his training, explains the juvenile cast of thought. It is difficult to account for on other grounds.

The weakness in argument I refer to is commonly called the "vicious circle," so commonly called, in fact, that I am surprised at the necessity I am under of pointing it out to an editorial writer for a magazine of such pretensions as *The International Journal of Orthodontia and Oral Surgery*. "The place which the dental profession has attained up to the present time has been the result of activities within the dental profession itself. . . . Therefore we believe that any movements to regulate dental education should be made by men in the dental profession who are best qualified to fill these positions." (What positions? Antecedent lacking!) As well say, Mr. Editor, "Medicine got along for a time without chemistry. Therefore let all chemists keep away from medicine."

As the Dental Faculties Association of American Universities (if you have that interest in exactness customarily attributed to members of the journalistic profession, you will be spared the further necessity of alluding to us as "whatever they call themselves"), we are presumably the group referred to in this statement: "we find a fourth group comprised of so-called 'university schools' which seem to think they should be allowed to control dental education because of their University affiliations." I must disclaim, for our organization, any attempt to "control" dental education. We seek merely to raise the standard in dental education to a higher level. This effort can hardly be disparaged. If you are familiar with the history of human thought and human progress, you will recognize that universities have long held it their duty, by virtue of being universities, to further human progress in every phase of education. An effort to raise the standard of dental education on the part of the university-schools, therefore, is no arrogation of authority; it is the mere fulfillment of a recognized duty.

Again you state: "we find another group of individuals who . . . are attempting to control dental education, as a result of their self-appointed authority. These men have been attracted to the dental field because of the importance which it holds at the present time and deem they are qualified to

make suggestions because of their financial backing." In amplification of these extraordinary statements you write: "In regard to . . . those of financial standing who have made suggestions regarding dental education, we believe they are absolutely unqualified, and we can see no reason why they should enter the dental field along educational lines, except that they have been attracted by the prominence which dentistry has attained at the present time and are a group of individuals who desire to be in contact with everything that is of importance. One of these men who claims to represent a large financial organization has taken it upon himself to attempt to suggest reforms to dental education . . . , etc." This can refer only to the survey of dental education recently undertaken by the Carnegie Foundation for the Advancement of Teaching. The spirit of the attack is too silly to merit an answer; I beg leave, however, to correct an error in fact. The Carnegie Foundation is by no means "self-appointed" in this task. At least ten years ago it was requested to make such a survey by the Dental Faculties Association of American Universities; and it has been asked at intervals ever since by other interested bodies, among them the Dental Educational Council. This body, which you laud so highly, is now co-operating heartily with the Foundation in its survey; and the National Dental Association which you likewise esteem qualified to "control" dental education, voted at its last meeting to give this survey its support. (The basis for your attack would thus seem to have shifted since the writing of your article.) The Dental Educational Council, furthermore, will probably, soon have among its members representatives from the Dental Faculties Association of American Universities.

With regard to your charge that the medical profession has no concern with dentistry, it is so far behind current thought that I cannot bring myself to undertake a reply. I refer you, if you are desirous of acquainting yourself with the scientific attitude on the subject, to the writings, among many others, of Doctor Charles Mayo of Rochester, Minnesota.

Inasmuch as your editorial questions the disinterestedness of the various bodies whose positions in the matter I have stated, I must ask of you the common editorial courtesy of printing my reply at an early date.

Very truly yours,

ALFRED OWRE,

President, Dental Faculties Association of American Universities.

Dental Education

IN THIS issue of *The International Journal of Orthodontia and Oral Surgery* is published a letter from the President of the Dental Faculties Association of the American Universities. The letter is in reply to an editorial in the August issue of this Journal, "Who Should Control Dental Education." We are glad that one in the exalted position of president of the above organization should take the time to cite some of his ideas regarding dental education at this time.

We have long been familiar with the work of the president of the above

organization and have realized the handicap under which the University of Minnesota is working with him as Dean of the Dental Department. A careful perusal of his letter proves the correctness of our judgment.

The writer of the letter is particularly aggrieved over the fact that we do not believe that the Dental Faculties Association of American Universities is the most ideal and uplifting organization in existence and that we should question its right to control dental education. The ideas held by some deans are so biased that it will take the profession years to overcome the harm they have done.

A great many men in the university schools are doing good and creditable work, but there are at least two schools, or rather two deans (of whom the Dean of the Dental Department of the University of Minnesota is one), that present a problem in the dental profession that is difficult to understand. State board results have amply demonstrated that students who graduate from university dental schools are no better educated than the students from the "private schools" which the universities consider such a detriment to the profession.

The gentleman from Minnesota disclaims any attempt to control dental education. Nevertheless, he believes in enacting such standards as to make it impossible for but a few students to enter the University of Minnesota, and he is trying to control dental education in the state of Minnesota to such an extent that the University of Minnesota is not rendering the service due the public who supports it. He says: "We seek merely to raise the standard in dental education to a higher level. This effort can hardly be disparaged. If you are familiar with the history of human thought and human progress, you will recognize that universities have long held it their duty, by virtue of being universities, to further human progress in every phase of education. An effort to raise the standards of dental education on the part of the university-school, therefore, is no arrogation of authority; it is the mere fulfillment of a recognized duty."

In answer to this quotation, we shall only ask the profession to remember what part the universities have played in dental education in the past and at what period it was that they became so anxious to raise the standards. They became interested after the "private schools" had built up dental education to the point where dentistry was a credit to all. If one will go back into the history of the dental profession, he will find that universities were not the first to teach dentistry. Not until the teaching of dentistry was placed on a firm and well recognized basis, not until private individuals and men in the dental profession had established dental schools, did the universities become interested in this phase of education. In other words, instead of being organizers, they are simply followers. Not until some one has inaugurated and proved the necessity of a thing does the university ever make a step forward.

The beginning of dental education is probably beyond the memory of most of the men in the dental profession today; however, the question of postgraduate instruction is a matter of more recent origin. We wonder whether the profession has observed the plans for postgraduate work made by the university-schools. Several universities have attempted to give postgraduate

work and it has been, in most cases, simple undergraduate work with the name "postgraduate" added to it. This statement does not apply to the University of Minnesota, Dental Department, but we have before us a publication from that University which will show what the Dean is sanctioning in postgraduate work. Like many other courses, postgraduate work in universities was not attempted until private individuals had given it a standing that made it advantageous for the universities to undertake. In an announcement of the University of Minnesota "General Extension Division, Short Courses for Dentists, College of Dentistry," a short course in Prosthetic Dentistry is featured. While this is a valuable course, it was never given in the university until its worth had been established by private individuals. Dr. M. M. House, of Indianapolis, is named to conduct these short courses in Prosthetic Dentistry, and it is true that he has a nation-wide reputation as a specialist; but it will be recalled that he obtained his instruction in Prosthetic Dentistry through private courses in private postgraduate classes. This is simply cited to show that universities are followers and not inaugurators, yet they attempt to control everything that is of value in dental education. They argue against the giving of private postgraduate courses, but the very courses they advocate were previously given by private individuals and after the necessity of such postgraduate work has been established, the university-schools attempt to control such instruction. Still the President of the Dental Faculties Association of American Universities contends they are only trying to raise the standards.

In reply to the argument advanced in the August editorial that dentists should control dental education, a ridiculous statement is made that "Medicine got along for a time without chemistry. Therefore let all chemists keep away from medicine." While the writer of the letter supposed that he was clever and witty in making that statement, nevertheless, he spoke much truer than he imagined. We contend today that physicians should control medical education. Medical education should not be controlled by chemists. However, at the present time we have a chemist trying to set standards for dental education. We still contend that the medical profession has no right to regulate the profession of dentistry simply because some few medical men have recognized the importance of dentistry. The reference made to Doctor Charles Mayo, of Rochester, does not prove that Doctor Mayo is fitted to control dental education. No one realizes that more than does Doctor Mayo himself.

As regards the Carnegie Foundation for the Advancement of Teaching, such organizations are more often working for the advancement of their own interests than for the interests of the profession that they attempt to investigate. At least, they are not prevented from working under misguided directors when they secure some one who knows little about dental education to investigate the schools. If the Carnegie Foundation for the Advancement of Teaching really desires to accomplish something, let it work in conjunction with the National Dental Educational Council.

The statement that "The Dental Educational Council, furthermore, will probably have among its number representatives from the Dental Faculties Association of American Universities" is interesting. This is probably true,

but the President of the Dental Faculties Association fails to state *why* the members of that organization have never cooperated with the National Dental Educational Council before. If he is willing to have those reasons stated, it certainly would be enlightening to the profession. We believe the less said about the National Dental Educational Council and the reasons the Dental Faculties Association of American Universities has not worked in conjunction with the Council, the better it will be for the president himself.

We still contend, regardless of the learned opinion of the gentleman from Minnesota, that dental education should be controlled by dentists. Furthermore, dental departments of state universities will serve the public much better if they have practical dentists as their deans, instead of highly cultured gentlemen who know little of dentistry.

If one will go back through the dental literature and read various articles that have been written by the President of the Dental Faculties Association of American Universities, he will find nothing about practical dentistry, but a great deal about high standards and culture; and after perusing the letter published in this issue of the Journal, we believe our readers will agree with us that if any group of men should not control dental education, it is one composed of this type.

ORTHODONTIC NEWS AND NOTES

The editors desire to make this department a permanent feature of the Journal, but in order to do so must have the full support of the orthodontic profession throughout the country. We would deem it a great favor if our subscribers and readers would send in such announcements as might be of interest to the profession.

Meeting of the American Society of Orthodontists

The next meeting of the American Society of Orthodontists will be held in Chicago, Illinois, at the Edgewater Beach Hotel on April 24, 25 and 26, 1922. A very interesting and instructive program has been arranged by the Board of Censors, consisting of Clinics, Case Reports and Papers of unusual merit. Reservation should be made early in order to secure the best accommodations.—Ralph Waldron, Sec.-Treas.

Annual Meeting of Minnesota State Dental Association

The thirty-ninth Annual Meeting of the Minnesota State Dental Association will be held at the Minneapolis Armory, February 22 to 25, 1922. Walter H. MacNeil, President, Physicians and Surgeons Bldg., Minneapolis; C. H. Turnquist, Secretary, LaSalle Bldg., Minneapolis.

Keio University Establishes Medical and Dental Department

Keio University, one of the oldest and largest colleges of Japan, has added recently a medical and dental department. Dr. Mitauru Okada has been made head of the dental department. Dr. Okada is a graduate of Tokyo Dental College and holds an American degree of D.D.S. He has studied orthodontic engineering under F. L. Stanton and associated engineers, and has made the Japanese translations of this work. Dr. Okada will specialize in Orthodontia at 443 Ikebukuro Sugama, Tokyo, Japan.

Notes of Interest

Dr. Harold Chapman announces that on and after November 1, 1921, he will practice orthodontia exclusively at 15 Upper Wimpole St., London, W. I.

Doctor Ernest N. Bach announces the opening of his office at 1307 Second National Bank Building, Toledo, Ohio. Practice limited to orthodontia. Dr. Bach was formerly associated with Dr. Burt Abell.

Doctor B. L. Hyams announces the opening of his offices, Suite 206 Birk's Building, Montreal, Canada. Practice limited to orthodontia.

Dr. Harry B. Wright announces the removal of his office to Suite 402 Shubert Building, 250 South Broad Street, Philadelphia.

Dr. William A. Murray announces that after October 15, 1921, his practice will be orthodontia exclusively. 627 Grove Street, Evanston, Illinois.

Federspiel's Dental Polyclinic announces the removal of their offices from the Wells Building to their clinic building, Northwest corner Astor Street and Ogden Avenue, Milwaukee, Wis.

Dr. J. F. Spencer announces the removal of his office to Suite 319-322 Powers Theatre Building, Grand Rapids, Michigan. Practice limited to orthodontia.

Dr. L. Olive Cole formerly of 702 Boyd Building, Winnipeg, Canada, announces the opening of her new office, Suite A-The Roslyn. Her practice will be limited to orthodontia.

Mrs. Julia Barth Crecelins announces the marriage of her daughter Elizabeth to Doctor Joseph Ebert Johnson on Saturday, October 1, 1921, New Albany, Indiana.

Delay in November Issue

The publishers regret the delay in the publication of the November issue. They were compelled to hold the forms for important editorial matter.